



SEQUENCE LISTING

<110> REGENERON PHARMACEUTICALS, INC.

<120> RECEPTOR BASED ANTAGONISTS, AND METHODS OF MAKING
AND USING

<130> REG 203-A

<140> USSN 09/313,942

<141> 1999-05-19

<150> 09/313,942

<151> 1999-05-19

<150> 60/101,858

<151> 1998-09-25

<160> 32

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Tag sequence

<400> 1

His His His His His His

1 5

<210> 2

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> peptide derived from region near C-terminus of
gp130

<400> 2

Cys Gly Thr Glu Gly Gln Val Glu Arg Phe Glu Thr Val Gly Met Glu

1 5 10 15

<210> 3

<211> 16

<212> DNA

<213> Artificial Sequence

<220>

<223> Kozak sequence

<400> 3

cgccgccacc atggtg

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<211> 10

<212> PRT
 <213> Artificial Sequence

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 <223> J peptide

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 Gly Gln Gly Thr Leu Val Thr Val Ser Ser
 1 5 10

 <210> 5
 <211> 11
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 <213> Artificial Sequence

 <220>
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 Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
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 Gly Ala Pro Ser Gly Gly Gly Arg Pro
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<210> 7
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 <213> Homo sapiens

<400> 7
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 Thr Thr Glu Ser Thr Gly Glu Leu Leu Asp Pro Cys Gly Tyr Ile Ser
 20 25 30
 Pro Glu Ser Pro Val Val Gln Leu His Ser Asn Phe Thr Ala Val Cys
 35 40 45
 Val Leu Lys Glu Lys Cys Met Asp Tyr Phe His Val Asn Ala Asn Tyr
 50 55 60
 Ile Val Trp Lys Thr Asn His Phe Thr Ile Pro Lys Glu Gln Tyr Thr
 65 70 75 80
 Ile Ile Asn Arg Thr Ala Ser Ser Val Thr Phe Thr Asp Ile Ala Ser
 85 90 95
 Leu Asn Ile Gln Leu Thr Cys Asn Ile Leu Thr Phe Gly Gln Leu Glu
 100 105 110
 Gln Asn Val Tyr Gly Ile Thr Ile Ser Gly Leu Pro Pro Glu Lys
 115 120 125
 Pro Lys Asn Leu Ser Cys Ile Val Asn Glu Gly Lys Lys Met Arg Cys
 130 135 140
 Glu Trp Asp Gly Gly Arg Glu Thr His Leu Glu Thr Asn Phe Thr Leu
 145 150 155 160
 Lys Ser Glu Trp Ala Thr His Lys Phe Ala Asp Cys Lys Ala Lys Arg

				165				170					175				
Asp	Thr	Pro	Thr	Ser	Cys	Thr	Val	Asp	Tyr	Ser	Thr	Val	Tyr	Phe	Val		
			180					185					190				
Asn	Ile	Glu	Val	Trp	Val	Glu	Ala	Glu	Asn	Ala	Leu	Gly	Lys	Val	Thr		
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Ser	Asp	His	Ile	Asn	Phe	Asp	Pro	Val	Tyr	Lys	Val	Lys	Pro	Asn	Pro		
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Pro	His	Asn	Leu	Ser	Val	Ile	Asn	Ser	Glu	Glu	Leu	Ser	Ser	Ile	Leu		
225					230					235					240		
Lys	Leu	Thr	Trp	Thr	Asn	Pro	Ser	Ile	Lys	Ser	Val	Ile	Ile	Leu	Lys		
				245					250					255			
Tyr	Asn	Ile	Gln	Tyr	Arg	Thr	Lys	Asp	Ala	Ser	Thr	Trp	Ser	Gln	Ile		
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Pro	Pro	Glu	Asp	Thr	Ala	Ser	Thr	Arg	Ser	Ser	Phe	Thr	Val	Gln	Asp		
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Leu	Lys	Pro	Phe	Thr	Glu	Tyr	Val	Phe	Arg	Ile	Arg	Cys	Met	Lys	Glu		
	290					295					300						
Asp	Gly	Lys	Gly	Tyr	Trp	Ser	Asp	Trp	Ser	Glu	Glu	Ala	Ser	Gly	Ile		
305					310					315				320			
Thr	Tyr	Glu	Asp	Arg	Pro	Ser	Lys	Ala	Pro	Ser	Phe	Trp	Tyr	Lys	Ile		
			325					330						335			
Asp	Pro	Ser	His	Thr	Gln	Gly	Tyr	Arg	Thr	Val	Gln	Leu	Val	Trp	Lys		
			340					345					350				
Thr	Leu	Pro	Pro	Phe	Glu	Ala	Asn	Gly	Lys	Ile	Leu	Asp	Tyr	Glu	Val		
		355					360					365					
Thr	Leu	Thr	Arg	Trp	Lys	Ser	His	Leu	Gln	Asn	Tyr	Thr	Val	Asn	Ala		
	370					375					380						
Thr	Lys	Leu	Thr	Val	Asn	Leu	Thr	Asn	Asp	Arg	Tyr	Leu	Ala	Thr	Leu		
385					390					395					400		
Thr	Val	Arg	Asn	Leu	Val	Gly	Lys	Ser	Asp	Ala	Ala	Val	Leu	Thr	Ile		
			405						410					415			
Pro	Ala	Cys	Asp	Phe	Gln	Ala	Thr	His	Pro	Val	Met	Asp	Leu	Lys	Ala		
			420					425					430				
Phe	Pro	Lys	Asp	Asn	Met	Leu	Trp	Val	Glu	Trp	Thr	Thr	Pro	Arg	Glu		
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Ser	Val	Lys	Lys	Tyr	Ile	Leu	Glu	Trp	Cys	Val	Leu	Ser	Asp	Lys	Ala		
	450					455					460						
Pro	Cys	Ile	Thr	Asp	Trp	Gln	Gln	Glu	Asp	Gly	Thr	Val	His	Arg	Thr		
465					470					475					480		
Tyr	Leu	Arg	Gly	Asn	Leu	Ala	Glu	Ser	Lys	Cys	Tyr	Leu	Ile	Thr	Val		
			485						490					495			
Thr	Pro	Val	Tyr	Ala	Asp	Gly	Pro	Gly	Ser	Pro	Glu	Ser	Ile	Lys	Ala		
			500					505					510				
Tyr	Leu	Lys	Gln	Ala	Pro	Pro	Ser	Lys	Gly	Pro	Thr	Val	Arg	Thr	Lys		
		515					520					525					
Lys	Val	Gly	Lys	Asn	Glu	Ala	Val	Leu	Glu	Trp	Asp	Gln	Leu	Pro	Val		
	530					535					540						
Asp	Val	Gln	Asn	Gly	Phe	Ile	Arg	Asn	Tyr	Thr	Ile	Phe	Tyr	Arg	Thr		
545					550					555					560		
Ile	Ile	Gly	Asn	Glu	Thr	Ala	Val	Asn	Val	Asp	Ser	Ser	His	Thr	Glu		
			565						570					575			
Tyr	Thr	Leu	Ser	Ser	Leu	Thr	Ser	Asp	Thr	Leu	Tyr	Met	Val	Arg	Met		
			580					585					590				
Ala	Ala	Tyr	Thr	Asp	Glu	Gly	Gly	Lys	Asp	Gly	Pro	Glu	Phe	Thr	Phe		
		595					600					605					
Thr	Thr	Pro	Lys	Phe	Ala	Gln	Gly	Glu	Ile	Glu	Ser	Gly	Glu	Pro	Lys		
	610					615					620						
Ser	Cys	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu		
625					630					635					640		
Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr		
				645					650					655			

Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val
			660					665					670		
Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val
		675					680					685			
Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser
	690					695					700				
Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu
705					710					715					720
Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala
				725					730					735	
Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro
			740					745					750		
Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln
		755					760					765			
Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala
	770					775					780				
Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr
785					790					795					800
Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu
				805					810					815	
Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser
			820					825					830		
Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser
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Leu	Ser	Pro	Gly	Lys	His	His	His	His	His	His					
	850					855									

<210> 8
 <211> 592
 <212> PRT
 <213> Homo sapiens

<400> 8

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			20					25					30		
Gly	Val	Leu	Thr	Ser	Leu	Pro	Gly	Asp	Ser	Val	Thr	Leu	Thr	Cys	Pro
		35					40					45			
Gly	Val	Glu	Pro	Glu	Asp	Asn	Ala	Thr	Val	His	Trp	Val	Leu	Arg	Lys
		50				55					60				
Pro	Ala	Ala	Gly	Ser	His	Pro	Ser	Arg	Trp	Ala	Gly	Met	Gly	Arg	Arg
65					70					75				80	
Leu	Leu	Leu	Arg	Ser	Val	Gln	Leu	His	Asp	Ser	Gly	Asn	Tyr	Ser	Cys
				85					90					95	
Tyr	Arg	Ala	Gly	Arg	Pro	Ala	Gly	Thr	Val	His	Leu	Leu	Val	Asp	Val
			100					105					110		
Pro	Pro	Glu	Glu	Pro	Gln	Leu	Ser	Cys	Phe	Arg	Lys	Ser	Pro	Leu	Ser
		115					120					125			
Asn	Val	Val	Cys	Glu	Trp	Gly	Pro	Arg	Ser	Thr	Pro	Ser	Leu	Thr	Thr
		130				135					140				
Lys	Ala	Val	Leu	Leu	Val	Arg	Lys	Phe	Gln	Asn	Ser	Pro	Ala	Glu	Asp
145					150					155				160	
Phe	Gln	Glu	Pro	Cys	Gln	Tyr	Ser	Gln	Glu	Ser	Gln	Lys	Phe	Ser	Cys
				165					170					175	
Gln	Leu	Ala	Val	Pro	Glu	Gly	Asp	Ser	Ser	Phe	Tyr	Ile	Val	Ser	Met
			180					185					190		
Cys	Val	Ala	Ser	Ser	Val	Gly	Ser	Lys	Phe	Ser	Lys	Thr	Gln	Thr	Phe
		195					200					205			
Gln	Gly	Cys	Gly	Ile	Leu	Gln	Pro	Asp	Pro	Pro	Ala	Asn	Ile	Thr	Val
	210					215					220				

Thr	Ala	Val	Ala	Arg	Asn	Pro	Arg	Trp	Leu	Ser	Val	Thr	Trp	Gln	Asp
225					230					235					240
Pro	His	Ser	Trp	Asn	Ser	Ser	Phe	Tyr	Arg	Leu	Arg	Phe	Glu	Leu	Arg
				245					250						255
Tyr	Arg	Ala	Glu	Arg	Ser	Lys	Thr	Phe	Thr	Thr	Trp	Met	Val	Lys	Asp
			260					265							270
Leu	Gln	His	His	Cys	Val	Ile	His	Asp	Ala	Trp	Ser	Gly	Leu	Arg	His
		275					280					285			
Val	Val	Gln	Leu	Arg	Ala	Gln	Glu	Glu	Phe	Gly	Gln	Gly	Glu	Trp	Ser
	290					295					300				
Glu	Trp	Ser	Pro	Glu	Ala	Met	Gly	Thr	Pro	Trp	Thr	Glu	Ser	Arg	Ser
305					310					315					320
Pro	Pro	Ala	Glu	Asn	Glu	Val	Ser	Thr	Pro	Met	Gln	Ala	Leu	Thr	Thr
				325					330						335
Asn	Lys	Asp	Asp	Asp	Asn	Ile	Leu	Phe	Arg	Asp	Ser	Ala	Asn	Ala	Thr
			340					345							350
Ser	Leu	Pro	Val	Gln	Asp	Ala	Gly	Glu	Pro	Lys	Ser	Cys	Asp	Lys	Thr
		355					360					365			
His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser
	370					375						380			
Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg
385					390					395					400
Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro
				405					410						415
Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala
			420					425							430
Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val
		435					440					445			
Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr
	450					455					460				
Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr
465					470					475					480
Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu
				485					490						495
Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys
			500					505							510
Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser
		515					520					525			
Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp
	530					535					540				
Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser
545					550					555					560
Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala
				565					570						575
Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys
			580					585					590		

<210> 9
 <211> 951
 <212> PRT
 <213> Homo sapiens

<400> 9
 Met Val Thr Leu Gln Thr Trp Val Val Gln Ala Leu Phe Ile Phe Leu
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 Thr Thr Glu Ser Thr Gly Glu Leu Leu Asp Pro Cys Gly Tyr Ile Ser
 20 25 30
 Pro Glu Ser Pro Val Val Gln Leu His Ser Asn Phe Thr Ala Val Cys
 35 40 45
 Val Leu Lys Glu Lys Cys Met Asp Tyr Phe His Val Asn Ala Asn Tyr
 50 55 60

Ile Val Trp Lys Thr Asn His Phe Thr Ile Pro Lys Glu Gln Tyr Thr	65	70	75	80
Ile Ile Asn Arg Thr Ala Ser Ser Val Thr Phe Thr Asp Ile Ala Ser	85	90	95	
Leu Asn Ile Gln Leu Thr Cys Asn Ile Leu Thr Phe Gly Gln Leu Glu	100	105	110	
Gln Asn Val Tyr Gly Ile Thr Ile Ile Ser Gly Leu Pro Pro Glu Lys	115	120	125	
Pro Lys Asn Leu Ser Cys Ile Val Asn Glu Gly Lys Lys Met Arg Cys	130	135	140	
Glu Trp Asp Gly Gly Arg Glu Thr His Leu Glu Thr Asn Phe Thr Leu	145	150	155	160
Lys Ser Glu Trp Ala Thr His Lys Phe Ala Asp Cys Lys Ala Lys Arg	165	170	175	
Asp Thr Pro Thr Ser Cys Thr Val Asp Tyr Ser Thr Val Tyr Phe Val	180	185	190	
Asn Ile Glu Val Trp Val Glu Ala Glu Asn Ala Leu Gly Lys Val Thr	195	200	205	
Ser Asp His Ile Asn Phe Asp Pro Val Tyr Lys Val Lys Pro Asn Pro	210	215	220	
Pro His Asn Leu Ser Val Ile Asn Ser Glu Glu Leu Ser Ser Ile Leu	225	230	235	240
Lys Leu Thr Trp Thr Asn Pro Ser Ile Lys Ser Val Ile Ile Leu Lys	245	250	255	
Tyr Asn Ile Gln Tyr Arg Thr Lys Asp Ala Ser Thr Trp Ser Gln Ile	260	265	270	
Pro Pro Glu Asp Thr Ala Ser Thr Arg Ser Ser Phe Thr Val Gln Asp	275	280	285	
Leu Lys Pro Phe Thr Glu Tyr Val Phe Arg Ile Arg Cys Met Lys Glu	290	295	300	
Asp Gly Lys Gly Tyr Trp Ser Asp Trp Ser Glu Glu Ala Ser Gly Ile	305	310	315	320
Thr Tyr Glu Asp Arg Pro Ser Lys Ala Pro Ser Phe Trp Tyr Lys Ile	325	330	335	
Asp Pro Ser His Thr Gln Gly Tyr Arg Thr Val Gln Leu Val Trp Lys	340	345	350	
Thr Leu Pro Pro Phe Glu Ala Asn Gly Lys Ile Leu Asp Tyr Glu Val	355	360	365	
Thr Leu Thr Arg Trp Lys Ser His Leu Gln Asn Tyr Thr Val Asn Ala	370	375	380	
Thr Lys Leu Thr Val Asn Leu Thr Asn Asp Arg Tyr Leu Ala Thr Leu	385	390	395	400
Thr Val Arg Asn Leu Val Gly Lys Ser Asp Ala Ala Val Leu Thr Ile	405	410	415	
Pro Ala Cys Asp Phe Gln Ala Thr His Pro Val Met Asp Leu Lys Ala	420	425	430	
Phe Pro Lys Asp Asn Met Leu Trp Val Glu Trp Thr Thr Pro Arg Glu	435	440	445	
Ser Val Lys Lys Tyr Ile Leu Glu Trp Cys Val Leu Ser Asp Lys Ala	450	455	460	
Pro Cys Ile Thr Asp Trp Gln Gln Glu Asp Gly Thr Val His Arg Thr	465	470	475	480
Tyr Leu Arg Gly Asn Leu Ala Glu Ser Lys Cys Tyr Leu Ile Thr Val	485	490	495	
Thr Pro Val Tyr Ala Asp Gly Pro Gly Ser Pro Glu Ser Ile Lys Ala	500	505	510	
Tyr Leu Lys Gln Ala Pro Pro Ser Lys Gly Pro Thr Val Arg Thr Lys	515	520	525	
Lys Val Gly Lys Asn Glu Ala Val Leu Glu Trp Asp Gln Leu Pro Val	530	535	540	
Asp Val Gln Asn Gly Phe Ile Arg Asn Tyr Thr Ile Phe Tyr Arg Thr				

545	Ile	Ile	Gly	Asn	Glu	Thr	Ala	Val	Asn	Val	Asp	Ser	Ser	His	Thr	Glu
					565					570						575
Tyr	Thr	Leu	Ser	Ser	Leu	Thr	Ser	Asp	Thr	Leu	Tyr	Met	Val	Arg	Met	
			580					585						590		
Ala	Ala	Tyr	Thr	Asp	Glu	Gly	Gly	Lys	Asp	Gly	Pro	Glu	Phe	Thr	Phe	
		595					600						605			
Thr	Thr	Pro	Lys	Phe	Ala	Gln	Gly	Glu	Ile	Glu	Ser	Gly	Ala	Ser	Thr	
		610				615						620				
Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys	Ser	Thr	Ser	
625					630						635				640	
Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr	Phe	Pro	Glu	
			645						650					655		
Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser	Gly	Val	His	
			660					665					670			
Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser	Leu	Ser	Ser	
		675					680						685			
Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr	Tyr	Ile	Cys	
		690				695					700					
Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys	Lys	Val	Glu	
705					710						715				720	
Pro	Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	
			725						730					735		
Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	
			740					745					750			
Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	
		755					760					765				
Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	
		770				775					780					
Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	
785					790						795				800	
Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	
			805						810					815		
Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	
		820						825					830			
Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	
		835					840					845				
Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	
		850				855					860					
Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	
865					870					875					880	
Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	
			885						890					895		
Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	
		900						905					910			
Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	
		915					920					925				
Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	
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Leu	Ser	Leu	Ser	Pro	Gly	Lys										
945					950											

<210> 10
 <211> 332
 <212> PRT
 <213> Homo sapiens

<400> 10
 Met Val Thr Leu Gln Thr Trp Val Val Gln Ala Leu Phe Ile Phe Leu
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 Thr Thr Glu Ser Thr Gly Glu Leu Leu Asp Pro Cys Gly Tyr Ile Ser

115

120

<210> 12
 <211> 329
 <212> PRT
 <213> Homo sapiens

<400> 12

Ser	Gly	Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Cys
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			20					25					30		
Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu
		35					40					45			
Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu
	50					55					60				
Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr
65					70					75					80
Lys	Thr	Tyr	Thr	Cys	Asn	Val	Asp	His	Lys	Pro	Ser	Asn	Thr	Lys	Val
				85					90					95	
Asp	Lys	Arg	Val	Glu	Ser	Lys	Tyr	Gly	Pro	Pro	Cys	Pro	Ser	Cys	Pro
			100					105					110		
Ala	Pro	Glu	Phe	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys
		115					120					125			
Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val
	130					135					140				
Val	Val	Asp	Val	Ser	Gln	Glu	Asp	Pro	Glu	Val	Gln	Phe	Asn	Trp	Tyr
145					150					155					160
Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu
			165						170					175	
Gln	Phe	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His
		180						185					190		
Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys
	195						200					205			
Gly	Leu	Pro	Ser	Ser	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln
	210					215					220				
Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Gln	Glu	Glu	Met
225					230					235					240
Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro
			245						250					255	
Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn
			260					265					270		
Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu
	275						280					285			
Tyr	Ser	Arg	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Glu	Gly	Asn	Val
	290					295					300				
Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln
305					310					315					320
Lys	Ser	Leu	Ser	Leu	Ser	Leu	Gly	Lys							
				325											

<210> 13
 <211> 108
 <212> PRT
 <213> Homo sapiens

<400> 13

Ser	Gly	Thr	Val	Ala	Ala	Pro	Ser	Val	Phe	Ile	Phe	Pro	Pro	Ser	Asp
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Glu	Gln	Leu	Lys	Ser	Gly	Thr	Ala	Ser	Val	Val	Cys	Leu	Leu	Asn	Asn
			20					25					30		

Phe	Tyr	Pro	Arg	Glu	Ala	Lys	Val	Gln	Trp	Lys	Val	Asp	Asn	Ala	Leu
		35					40					45			
Gln	Ser	Gly	Asn	Ser	Gln	Glu	Ser	Val	Thr	Glu	Gln	Asp	Ser	Lys	Asp
	50					55					60				
Ser	Thr	Tyr	Ser	Leu	Ser	Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr
65					70					75					80
Glu	Lys	His	Lys	Val	Tyr	Ala	Cys	Glu	Val	Thr	His	Gln	Gly	Leu	Ser
			85						90					95	
Ser	Pro	Val	Thr	Lys	Ser	Phe	Asn	Arg	Gly	Glu	Cys				
			100					105							

<210> 14
 <211> 106
 <212> PRT
 <213> Homo sapiens

Ser	Gly	Pro	Lys	Ala	Ala	Pro	Ser	Val	Thr	Leu	Phe	Pro	Pro	Ser	Ser
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Glu	Glu	Leu	Gln	Ala	Asn	Lys	Ala	Thr	Leu	Val	Cys	Leu	Ile	Ser	Asp
			20					25					30		
Phe	Tyr	Pro	Gly	Ala	Val	Thr	Val	Ala	Trp	Lys	Ala	Asp	Ser	Ser	Pro
		35					40					45			
Val	Lys	Ala	Gly	Val	Glu	Thr	Thr	Thr	Pro	Ser	Lys	Gln	Ser	Asn	Asn
	50					55					60				
Lys	Tyr	Ala	Ala	Ser	Ser	Tyr	Leu	Ser	Leu	Thr	Pro	Glu	Gln	Trp	Lys
65					70					75					80
Ser	His	Arg	Ser	Tyr	Ser	Cys	Gln	Val	Thr	His	Glu	Gly	Ser	Thr	Val
				85					90					95	
Glu	Lys	Thr	Val	Ala	Pro	Thr	Glu	Cys	Ser						
			100					105							

<210> 15
 <211> 360
 <212> PRT
 <213> Homo sapiens

Met	Val	Ala	Val	Gly	Cys	Ala	Leu	Leu	Ala	Ala	Leu	Leu	Ala	Ala	Pro
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Gly	Ala	Ala	Leu	Ala	Pro	Arg	Arg	Cys	Pro	Ala	Gln	Glu	Val	Ala	Arg
			20					25					30		
Gly	Val	Leu	Thr	Ser	Leu	Pro	Gly	Asp	Ser	Val	Thr	Leu	Thr	Cys	Pro
		35					40					45			
Gly	Val	Glu	Pro	Glu	Asp	Asn	Ala	Thr	Val	His	Trp	Val	Leu	Arg	Lys
	50					55					60				
Pro	Ala	Ala	Gly	Ser	His	Pro	Ser	Arg	Trp	Ala	Gly	Met	Gly	Arg	Arg
65					70					75					80
Leu	Leu	Leu	Arg	Ser	Val	Gln	Leu	His	Asp	Ser	Gly	Asn	Tyr	Ser	Cys
				85					90					95	
Tyr	Arg	Ala	Gly	Arg	Pro	Ala	Gly	Thr	Val	His	Leu	Leu	Val	Asp	Val
			100					105					110		
Pro	Pro	Glu	Glu	Pro	Gln	Leu	Ser	Cys	Phe	Arg	Lys	Ser	Pro	Leu	Ser
		115					120					125			
Asn	Val	Val	Cys	Glu	Trp	Gly	Pro	Arg	Ser	Thr	Pro	Ser	Leu	Thr	Thr
	130					135					140				
Lys	Ala	Val	Leu	Leu	Val	Arg	Lys	Phe	Gln	Asn	Ser	Pro	Ala	Glu	Asp
145					150					155					160
Phe	Gln	Glu	Pro	Cys	Gln	Tyr	Ser	Gln	Glu	Ser	Gln	Lys	Phe	Ser	Cys
				165					170					175	
Gln	Leu	Ala	Val	Pro	Glu	Gly	Asp	Ser	Ser	Phe	Tyr	Ile	Val	Ser	Met

			180					185				190			
Cys	Val	Ala	Ser	Ser	Val	Gly	Ser	Lys	Phe	Ser	Lys	Thr	Gln	Thr	Phe
		195					200					205			
Gln	Gly	Cys	Gly	Ile	Leu	Gln	Pro	Asp	Pro	Pro	Ala	Asn	Ile	Thr	Val
	210					215					220				
Thr	Ala	Val	Ala	Arg	Asn	Pro	Arg	Trp	Leu	Ser	Val	Thr	Trp	Gln	Asp
225					230					235					240
Pro	His	Ser	Trp	Asn	Ser	Ser	Phe	Tyr	Arg	Leu	Arg	Phe	Glu	Leu	Arg
				245					250					255	
Tyr	Arg	Ala	Glu	Arg	Ser	Lys	Thr	Phe	Thr	Thr	Trp	Met	Val	Lys	Asp
		260						265					270		
Leu	Gln	His	His	Cys	Val	Ile	His	Asp	Ala	Trp	Ser	Gly	Leu	Arg	His
		275					280					285			
Val	Val	Gln	Leu	Arg	Ala	Gln	Glu	Glu	Phe	Gly	Gln	Gly	Glu	Trp	Ser
	290					295					300				
Glu	Trp	Ser	Pro	Glu	Ala	Met	Gly	Thr	Pro	Trp	Thr	Glu	Ser	Arg	Ser
305					310					315					320
Pro	Pro	Ala	Glu	Asn	Glu	Val	Ser	Thr	Pro	Met	Gln	Ala	Leu	Thr	Thr
				325					330					335	
Asn	Lys	Asp	Asp	Asp	Asn	Ile	Leu	Phe	Arg	Asp	Ser	Ala	Asn	Ala	Thr
			340					345					350		
Ser	Leu	Pro	Val	Gln	Asp	Ala	Gly								
		355					360								

<210> 16
 <211> 315
 <212> PRT
 <213> Homo sapiens

Met	Val	Ala	Val	Gly	Cys	Ala	Leu	Leu	Ala	Ala	Leu	Leu	Ala	Ala	Pro
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Gly	Ala	Ala	Leu	Ala	Pro	Arg	Arg	Cys	Pro	Ala	Gln	Glu	Val	Ala	Arg
			20					25					30		
Gly	Val	Leu	Thr	Ser	Leu	Pro	Gly	Asp	Ser	Val	Thr	Leu	Thr	Cys	Pro
		35					40					45			
Gly	Val	Glu	Pro	Glu	Asp	Asn	Ala	Thr	Val	His	Trp	Val	Leu	Arg	Lys
	50					55					60				
Pro	Ala	Ala	Gly	Ser	His	Pro	Ser	Arg	Trp	Ala	Gly	Met	Gly	Arg	Arg
65					70				75						80
Leu	Leu	Leu	Arg	Ser	Val	Gln	Leu	His	Asp	Ser	Gly	Asn	Tyr	Ser	Cys
				85					90					95	
Tyr	Arg	Ala	Gly	Arg	Pro	Ala	Gly	Thr	Val	His	Leu	Leu	Val	Asp	Val
		100					105						110		
Pro	Pro	Glu	Pro	Gln	Leu	Ser	Cys	Phe	Arg	Lys	Ser	Pro	Leu	Ser	
		115				120					125				
Asn	Val	Val	Cys	Glu	Trp	Gly	Pro	Arg	Ser	Thr	Pro	Ser	Leu	Thr	Thr
		130				135					140				
Lys	Ala	Val	Leu	Leu	Val	Arg	Lys	Phe	Gln	Asn	Ser	Pro	Ala	Glu	Asp
145					150				155						160
Phe	Gln	Glu	Pro	Cys	Gln	Tyr	Ser	Gln	Glu	Ser	Gln	Lys	Phe	Ser	Cys
				165					170					175	
Gln	Leu	Ala	Val	Pro	Glu	Gly	Asp	Ser	Ser	Phe	Tyr	Ile	Val	Ser	Met
		180					185						190		
Cys	Val	Ala	Ser	Ser	Val	Gly	Ser	Lys	Phe	Ser	Lys	Thr	Gln	Thr	Phe
		195					200					205			
Gln	Gly	Cys	Gly	Ile	Leu	Gln	Pro	Asp	Pro	Pro	Ala	Asn	Ile	Thr	Val
	210					215					220				
Thr	Ala	Val	Ala	Arg	Asn	Pro	Arg	Trp	Leu	Ser	Val	Thr	Trp	Gln	Asp
225					230					235					240
Pro	His	Ser	Trp	Asn	Ser	Ser	Phe	Tyr	Arg	Leu	Arg	Phe	Glu	Leu	Arg

				245					250					255			
Tyr	Arg	Ala	Glu	Arg	Ser	Lys	Thr	Phe	Thr	Thr	Trp	Met	Val	Lys	Asp		
			260					265					270				
Leu	Gln	His	His	Cys	Val	Ile	His	Asp	Ala	Trp	Ser	Gly	Leu	Arg	His		
		275					280					285					
Val	Val	Gln	Leu	Arg	Ala	Gln	Glu	Glu	Phe	Gly	Gln	Gly	Glu	Trp	Ser		
	290					295					300						
Glu	Trp	Ser	Pro	Glu	Ala	Met	Gly	Thr	Thr	Gly							
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<210> 17
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 <212> DNA
 <213> Homo sapiens

<220>
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<400> 17

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Met	Val	Lys	Pro	Ser	Leu	Pro	Phe	Thr	Ser	Leu	Leu	Phe	Leu	Gln	Leu		
1				5					10					15			
ccc	ctg	ctg	gga	gtg	ggg	ctg	aac	acg	aca	att	ctg	acg	ccc	aat	ggg		96
Pro	Leu	Leu	Gly	Val	Gly	Leu	Asn	Thr	Thr	Ile	Leu	Thr	Pro	Asn	Gly		
			20					25					30				
aat	gaa	gac	acc	aca	gct	gat	ttc	ttc	ctg	acc	act	atg	ccc	act	gac		144
Asn	Glu	Asp	Thr	Thr	Ala	Asp	Phe	Phe	Leu	Thr	Thr	Met	Pro	Thr	Asp		
		35					40					45					
tcc	ctc	agt	gtt	tcc	act	ctg	ccc	ctc	cca	gag	gtt	cag	tgt	ttt	gtg		192
Ser	Leu	Ser	Val	Ser	Thr	Leu	Pro	Leu	Pro	Glu	Val	Gln	Cys	Phe	Val		
	50					55					60						
ttc	aat	gtc	gag	tac	atg	aat	tgc	act	tgg	aac	agc	agc	tct	gag	ccc		240
Phe	Asn	Val	Glu	Tyr	Met	Asn	Cys	Thr	Trp	Asn	Ser	Ser	Ser	Glu	Pro		
65					70				75					80			
cag	cct	acc	aac	ctc	act	ctg	cat	tat	tgg	tac	aag	aac	tcg	gat	aat		288
Gln	Pro	Thr	Asn	Leu	Thr	Leu	His	Tyr	Trp	Tyr	Lys	Asn	Ser	Asp	Asn		
			85						90					95			
gat	aaa	gtc	cag	aag	tgc	agc	cac	tat	cta	ttc	tct	gaa	gaa	atc	act		336
Asp	Lys	Val	Gln	Lys	Cys	Ser	His	Tyr	Leu	Phe	Ser	Glu	Glu	Ile	Thr		
			100					105					110				
tct	ggc	tgt	cag	ttg	caa	aaa	aag	gag	atc	cac	ctc	tac	caa	aca	ttt		384
Ser	Gly	Cys	Gln	Leu	Gln	Lys	Lys	Glu	Ile	His	Leu	Tyr	Gln	Thr	Phe		
		115					120					125					
gtt	gtt	cag	ctc	cag	gac	cca	cgg	gaa	ccc	agg	aga	cag	gcc	aca	cag		432
Val	Val	Gln	Leu	Gln	Asp	Pro	Arg	Glu	Pro	Arg	Arg	Gln	Ala	Thr	Gln		
		130				135					140						
atg	cta	aaa	ctg	cag	aat	ctg	gtg	atc	ccc	tgg	gct	cca	gag	aac	cta		480
Met	Leu	Lys	Leu	Gln	Asn	Leu	Val	Ile	Pro	Trp	Ala	Pro	Glu	Asn	Leu		
145					150					155					160		
aca	ctt	cac	aaa	ctg	agt	gaa	tcc	cag	cta	gaa	ctg	aac	tgg	aac	aac		528

Thr	Leu	His	Lys	Leu	Ser	Glu	Ser	Gln	Leu	Glu	Leu	Asn	Trp	Asn	Asn		
				165					170					175			
aga	ttc	ttg	aac	cac	tgt	ttg	gag	cac	ttg	gtg	cag	tac	cgg	act	gac	576	
Arg	Phe	Leu	Asn	His	Cys	Leu	Glu	His	Leu	Val	Gln	Tyr	Arg	Thr	Asp		
			180					185					190				
tgg	gac	cac	agc	tgg	act	gaa	caa	tca	gtg	gat	tat	aga	cat	aag	ttc	624	
Trp	Asp	His	Ser	Trp	Thr	Glu	Gln	Ser	Val	Asp	Tyr	Arg	His	Lys	Phe		
			195				200					205					
tcc	ttg	cct	agt	gtg	gat	ggg	cag	aaa	cgc	tac	acg	ttt	cgt	gtt	cgg	672	
Ser	Leu	Pro	Ser	Val	Asp	Gly	Gln	Lys	Arg	Tyr	Thr	Phe	Arg	Val	Arg		
	210					215					220						
agc	cgc	ttt	aac	cca	ctc	tgt	gga	agt	gct	cag	cat	tgg	agt	gaa	tgg	720	
Ser	Arg	Phe	Asn	Pro	Leu	Cys	Gly	Ser	Ala	Gln	His	Trp	Ser	Glu	Trp		
225					230					235				240			
agc	cac	cca	atc	cac	tgg	ggg	agc	aat	act	tca	aaa	gag	aac	gcg	tcg	768	
Ser	His	Pro	Ile	His	Trp	Gly	Ser	Asn	Thr	Ser	Lys	Glu	Asn	Ala	Ser		
				245					250					255			
tct	ggg	aac	atg	aag	gtc	ctg	cag	gag	ccc	acc	tgc	gtc	tcc	gac	tac	816	
Ser	Gly	Asn	Met	Lys	Val	Leu	Gln	Glu	Pro	Thr	Cys	Val	Ser	Asp	Tyr		
			260				265						270				
atg	agc	atc	tct	act	tgc	gag	tgg	aag	atg	aat	ggg	ccc	acc	aat	tgc	864	
Met	Ser	Ile	Ser	Thr	Cys	Glu	Trp	Lys	Met	Asn	Gly	Pro	Thr	Asn	Cys		
		275					280					285					
agc	acc	gag	ctc	cgc	ctg	ttg	tac	cag	ctg	gtt	ttt	ctg	ctc	tcc	gaa	912	
Ser	Thr	Glu	Leu	Arg	Leu	Leu	Tyr	Gln	Leu	Val	Phe	Leu	Leu	Ser	Glu		
	290					295					300						
gcc	cac	acg	tgt	atc	cct	gag	aac	aac	gga	ggc	gcg	ggg	tgc	gtg	tgc	960	
Ala	His	Thr	Cys	Ile	Pro	Glu	Asn	Asn	Gly	Gly	Ala	Gly	Cys	Val	Cys		
305					310					315				320			
cac	ctg	ctc	atg	gat	gac	gtg	gtc	agt	gcg	gat	aac	tat	aca	ctg	gac	1008	
His	Leu	Leu	Met	Asp	Asp	Val	Val	Ser	Ala	Asp	Asn	Tyr	Thr	Leu	Asp		
				325					330					335			
ctg	tgg	gct	ggg	cag	cag	ctg	ctg	tgg	aag	ggc	tcc	ttc	aag	ccc	agc	1056	
Leu	Trp	Ala	Gly	Gln	Gln	Leu	Leu	Trp	Lys	Gly	Ser	Phe	Lys	Pro	Ser		
			340					345					350				
gag	cat	gtg	aaa	ccc	agg	gcc	cca	gga	aac	ctg	aca	gtt	cac	acc	aat	1104	
Glu	His	Val	Lys	Pro	Arg	Ala	Pro	Gly	Asn	Leu	Thr	Val	His	Thr	Asn		
			355				360					365					
gtc	tcc	gac	act	ctg	ctg	ctg	acc	tgg	agc	aac	ccg	tat	ccc	cct	gac	1152	
Val	Ser	Asp	Thr	Leu	Leu	Leu	Thr	Trp	Ser	Asn	Pro	Tyr	Pro	Pro	Asp		
	370					375					380						
aat	tac	ctg	tat	aat	cat	ctc	acc	tat	gca	gtc	aac	att	tgg	agt	gaa	1200	
Asn	Tyr	Leu	Tyr	Asn	His	Leu	Thr	Tyr	Ala	Val	Asn	Ile	Trp	Ser	Glu		
385					390					395				400			
aac	gac	ccg	gca	gat	ttc	aga	atc	tat	aac	gtg	acc	tac	cta	gaa	ccc	1248	
Asn	Asp	Pro	Ala	Asp	Phe	Arg	Ile	Tyr	Asn	Val	Thr	Tyr	Leu	Glu	Pro		

405										410					415					
tcc	ctc	cgc	atc	gca	gcc	agc	acc	ctg	aag	tct	ggg	att	tcc	tac	agg	1296				
Ser	Leu	Arg	Ile	Ala	Ala	Ser	Thr	Leu	Lys	Ser	Gly	Ile	Ser	Tyr	Arg					
420				425				430												
gca	cgg	gtg	agg	gcc	tgg	gct	cag	tgc	tat	aac	acc	acc	tgg	agt	gag	1344				
Ala	Arg	Val	Arg	Ala	Trp	Ala	Gln	Cys	Tyr	Asn	Thr	Thr	Trp	Ser	Glu					
435				440				445												
tgg	agc	ccc	agc	acc	aag	tgg	cac	aac	tcc	tac	agg	gag	ccc	ttc	gag	1392				
Trp	Ser	Pro	Ser	Thr	Lys	Trp	His	Asn	Ser	Tyr	Arg	Glu	Pro	Phe	Glu					
450				455				460												
cag	tcc	gga	gac	aaa	act	cac	aca	tgc	cca	ccg	tgc	cca	gca	cct	gaa	1440				
Gln	Ser	Gly	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu					
465				470				475				480								
ctc	ctg	ggg	gga	ccg	tca	gtc	ttc	ctc	ttc	ccc	cca	aaa	ccc	aag	gac	1488				
Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp					
485				490				495												
acc	ctc	atg	atc	tcc	cgg	acc	cct	gag	gtc	aca	tgc	gtg	gtg	gtg	gac	1536				
Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp					
500				505				510												
gtg	agc	cac	gaa	gac	cct	gag	gtc	aag	ttc	aac	tgg	tac	gtg	gac	ggc	1584				
Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly					
515				520				525												
gtg	gag	gtg	cat	aat	gcc	aag	aca	aag	ccg	cgg	gag	gag	cag	tac	aac	1632				
Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn					
530				535				540												
agc	acg	tac	cgt	gtg	gtc	agc	gtc	ctc	acc	gtc	ctg	cac	cag	gac	tgg	1680				
Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp					
545				550				555				560								
ctg	aat	ggc	aag	gag	tac	aag	tgc	aag	gtc	tcc	aac	aaa	gcc	ctc	cca	1728				
Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro					
565				570				575												
gcc	ccc	atc	gag	aaa	acc	atc	tcc	aaa	gcc	aaa	ggg	cag	ccc	cga	gaa	1776				
Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu					
580				585				590												
cca	cag	gtg	tac	acc	ctg	ccc	cca	tcc	cgg	gag	gag	atg	acc	aag	aac	1824				
Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn					
595				600				605												
cag	gtc	agc	ctg	acc	tgc	ctg	gtc	aaa	ggc	ttc	tat	ccc	agc	gac	atc	1872				
Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile					
610				615				620												
gcc	gtg	gag	tgg	gag	agc	aat	ggg	cag	ccg	gag	aac	aac	tac	aag	acc	1920				
Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr					
625				630				635				640								
acg	cct	ccc	gtg	ctg	gac	tcc	gac	ggc	tcc	ttc	ttc	ctc	tat	agc	aag	1968				
Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys					
645				650				655												

ctc	acc	gtg	gac	aag	agc	agg	tgg	cag	cag	ggg	aac	gtc	ttc	tca	tgc	2016
Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	
			660					665					670			

tcc	gtg	atg	cat	gag	gct	ctg	cac	aac	cac	tac	acg	cag	aag	agc	ctc	2064
Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	
		675					680					685				

tcc	ctg	tct	ccg	ggg	aaa	tga										2085
Ser	Leu	Ser	Pro	Gly	Lys											
		690														

<210> 18
 <211> 694
 <212> PRT
 <213> Homo sapiens

<400> 18															
Met	Val	Lys	Pro	Ser	Leu	Pro	Phe	Thr	Ser	Leu	Leu	Phe	Leu	Gln	Leu
1				5					10					15	
Pro	Leu	Leu	Gly	Val	Gly	Leu	Asn	Thr	Thr	Ile	Leu	Thr	Pro	Asn	Gly
			20					25					30		
Asn	Glu	Asp	Thr	Thr	Ala	Asp	Phe	Phe	Leu	Thr	Thr	Met	Pro	Thr	Asp
		35					40					45			
Ser	Leu	Ser	Val	Ser	Thr	Leu	Pro	Leu	Pro	Glu	Val	Gln	Cys	Phe	Val
	50					55					60				
Phe	Asn	Val	Glu	Tyr	Met	Asn	Cys	Thr	Trp	Asn	Ser	Ser	Ser	Glu	Pro
65				70					75					80	
Gln	Pro	Thr	Asn	Leu	Thr	Leu	His	Tyr	Trp	Tyr	Lys	Asn	Ser	Asp	Asn
			85					90						95	
Asp	Lys	Val	Gln	Lys	Cys	Ser	His	Tyr	Leu	Phe	Ser	Glu	Glu	Ile	Thr
			100					105					110		
Ser	Gly	Cys	Gln	Leu	Gln	Lys	Lys	Glu	Ile	His	Leu	Tyr	Gln	Thr	Phe
		115					120					125			
Val	Val	Gln	Leu	Gln	Asp	Pro	Arg	Glu	Pro	Arg	Arg	Gln	Ala	Thr	Gln
		130				135					140				
Met	Leu	Lys	Leu	Gln	Asn	Leu	Val	Ile	Pro	Trp	Ala	Pro	Glu	Asn	Leu
145				150					155					160	
Thr	Leu	His	Lys	Leu	Ser	Glu	Ser	Gln	Leu	Glu	Leu	Asn	Trp	Asn	Asn
			165					170					175		
Arg	Phe	Leu	Asn	His	Cys	Leu	Glu	His	Leu	Val	Gln	Tyr	Arg	Thr	Asp
			180					185					190		
Trp	Asp	His	Ser	Trp	Thr	Glu	Gln	Ser	Val	Asp	Tyr	Arg	His	Lys	Phe
		195					200					205			
Ser	Leu	Pro	Ser	Val	Asp	Gly	Gln	Lys	Arg	Tyr	Thr	Phe	Arg	Val	Arg
		210				215					220				
Ser	Arg	Phe	Asn	Pro	Leu	Cys	Gly	Ser	Ala	Gln	His	Trp	Ser	Glu	Trp
225				230					235					240	
Ser	His	Pro	Ile	His	Trp	Gly	Ser	Asn	Thr	Ser	Lys	Glu	Asn	Ala	Ser
			245					250						255	
Ser	Gly	Asn	Met	Lys	Val	Leu	Gln	Glu	Pro	Thr	Cys	Val	Ser	Asp	Tyr
			260					265					270		
Met	Ser	Ile	Ser	Thr	Cys	Glu	Trp	Lys	Met	Asn	Gly	Pro	Thr	Asn	Cys
		275					280					285			
Ser	Thr	Glu	Leu	Arg	Leu	Leu	Tyr	Gln	Leu	Val	Phe	Leu	Leu	Ser	Glu
		290				295					300				
Ala	His	Thr	Cys	Ile	Pro	Glu	Asn	Asn	Gly	Gly	Ala	Gly	Cys	Val	Cys
305				310					315					320	
His	Leu	Leu	Met	Asp	Asp	Val	Val	Ser	Ala	Asp	Asn	Tyr	Thr	Leu	Asp

Leu	Trp	Ala	Gly	325	Gln	Gln	Leu	Leu	Trp	330	Lys	Gly	Ser	Phe	Lys	335	Pro	Ser
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Glu	His	Val	Lys	Pro	Arg	Ala	Pro	Gly	Asn	Leu	Thr	Val	His	Thr	Asn			
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Val	Ser	Asp	Thr	Leu	Leu	Leu	Thr	Trp	Ser	Asn	Pro	Tyr	Pro	Pro	Asp			
		370				375					380							
Asn	Tyr	Leu	Tyr	Asn	His	Leu	Thr	Tyr	Ala	Val	Asn	Ile	Trp	Ser	Glu			
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Asn	Asp	Pro	Ala	Asp	Phe	Arg	Ile	Tyr	Asn	Val	Thr	Tyr	Leu	Glu	Pro			
				405					410					415				
Ser	Leu	Arg	Ile	Ala	Ala	Ser	Thr	Leu	Lys	Ser	Gly	Ile	Ser	Tyr	Arg			
			420					425					430					
Ala	Arg	Val	Arg	Ala	Trp	Ala	Gln	Cys	Tyr	Asn	Thr	Thr	Trp	Ser	Glu			
		435				440							445					
Trp	Ser	Pro	Ser	Thr	Lys	Trp	His	Asn	Ser	Tyr	Arg	Glu	Pro	Phe	Glu			
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Gln	Ser	Gly	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu			
465					470					475					480			
Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp			
				485					490					495				
Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp			
			500					505					510					
Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly			
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Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn			
		530				535					540							
Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp			
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Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu			
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Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn			
		595				600						605						
Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile			
		610				615					620							
Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr			
625					630					635					640			
Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys			
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Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys			
			660					665					670					
Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu			
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Ser	Leu	Ser	Pro	Gly	Lys													
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<220>
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1				5					10					15				

ccc ctg ctg gga gtg ggg ctg aac acg aca att ctg acg ccc aat ggg	96
Pro Leu Leu Gly Val Gly Leu Asn Thr Thr Ile Leu Thr Pro Asn Gly	
20 25 30	
aat gaa gac acc aca gct gat ttc ttc ctg acc act atg ccc act gac	144
Asn Glu Asp Thr Thr Ala Asp Phe Phe Leu Thr Thr Met Pro Thr Asp	
35 40 45	
tcc ctc agt gtt tcc act ctg ccc ctc cca gag gtt cag tgt ttt gtg	192
Ser Leu Ser Val Ser Thr Leu Pro Leu Pro Glu Val Gln Cys Phe Val	
50 55 60	
ttc aat gtc gag tac atg aat tgc act tgg aac agc agc tct gag ccc	240
Phe Asn Val Glu Tyr Met Asn Cys Thr Trp Asn Ser Ser Ser Glu Pro	
65 70 75 80	
cag cct acc aac ctc act ctg cat tat tgg tac aag aac tcg gat aat	288
Gln Pro Thr Asn Leu Thr Leu His Tyr Trp Tyr Lys Asn Ser Asp Asn	
85 90 95	
gat aaa gtc cag aag tgc agc cac tat cta ttc tct gaa gaa atc act	336
Asp Lys Val Gln Lys Cys Ser His Tyr Leu Phe Ser Glu Glu Ile Thr	
100 105 110	
tct ggc tgt cag ttg caa aaa aag gag atc cac ctc tac caa aca ttt	384
Ser Gly Cys Gln Leu Gln Lys Lys Glu Ile His Leu Tyr Gln Thr Phe	
115 120 125	
gtt gtt cag ctc cag gac cca cgg gaa ccc agg aga cag gcc aca cag	432
Val Val Gln Leu Gln Asp Pro Arg Glu Pro Arg Arg Gln Ala Thr Gln	
130 135 140	
atg cta aaa ctg cag aat ctg gtg atc ccc tgg gct cca gag aac cta	480
Met Leu Lys Leu Gln Asn Leu Val Ile Pro Trp Ala Pro Glu Asn Leu	
145 150 155 160	
aca ctt cac aaa ctg agt gaa tcc cag cta gaa ctg aac tgg aac aac	528
Thr Leu His Lys Leu Ser Glu Ser Gln Leu Glu Leu Asn Trp Asn Asn	
165 170 175	
aga ttc ttg aac cac tgt ttg gag cac ttg gtg cag tac cgg act gac	576
Arg Phe Leu Asn His Cys Leu Glu His Leu Val Gln Tyr Arg Thr Asp	
180 185 190	
tgg gac cac agc tgg act gaa caa tca gtg gat tat aga cat aag ttc	624
Trp Asp His Ser Trp Thr Glu Gln Ser Val Asp Tyr Arg His Lys Phe	
195 200 205	
tcc ttg cct agt gtg gat ggg cag aaa cgc tac acg ttt cgt gtt cgg	672
Ser Leu Pro Ser Val Asp Gly Gln Lys Arg Tyr Thr Phe Arg Val Arg	
210 215 220	
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Ser Arg Phe Asn Pro Leu Cys Gly Ser Ala Gln His Trp Ser Glu Trp	
225 230 235 240	
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Ser His Pro Ile His Trp Gly Ser Asn Thr Ser Lys Glu Asn Gly Asn	
245 250 255	

atg aag gtc ctg cag gag ccc acc tgc gtc tcc gac tac atg agc atc	816
Met Lys Val Leu Gln Glu Pro Thr Cys Val Ser Asp Tyr Met Ser Ile	
260 265 270	
tct act tgc gag tgg aag atg aat ggt ccc acc aat tgc agc acc gag	864
Ser Thr Cys Glu Trp Lys Met Asn Gly Pro Thr Asn Cys Ser Thr Glu	
275 280 285	
ctc cgc ctg ttg tac cag ctg gtt ttt ctg ctc tcc gaa gcc cac acg	912
Leu Arg Leu Leu Tyr Gln Leu Val Phe Leu Leu Ser Glu Ala His Thr	
290 295 300	
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Cys Ile Pro Glu Asn Asn Gly Gly Ala Gly Cys Val Cys His Leu Leu	
305 310 315 320	
atg gat gac gtg gtc agt gcg gat aac tat aca ctg gac ctg tgg gct	1008
Met Asp Asp Val Val Ser Ala Asp Asn Tyr Thr Leu Asp Leu Trp Ala	
325 330 335	
ggg cag cag ctg ctg tgg aag ggc tcc ttc aag ccc agc gag cat gtg	1056
Gly Gln Gln Leu Leu Trp Lys Gly Ser Phe Lys Pro Ser Glu His Val	
340 345 350	
aaa ccc agg gcc cca gga aac ctg aca gtt cac acc aat gtc tcc gac	1104
Lys Pro Arg Ala Pro Gly Asn Leu Thr Val His Thr Asn Val Ser Asp	
355 360 365	
act ctg ctg ctg acc tgg agc aac ccg tat ccc cct gac aat tac ctg	1152
Thr Leu Leu Leu Thr Trp Ser Asn Pro Tyr Pro Pro Asp Asn Tyr Leu	
370 375 380	
tat aat cat ctc acc tat gca gtc aac att tgg agt gaa aac gac ccg	1200
Tyr Asn His Leu Thr Tyr Ala Val Asn Ile Trp Ser Glu Asn Asp Pro	
385 390 395 400	
gca gat ttc aga atc tat aac gtg acc tac cta gaa ccc tcc ctc cgc	1248
Ala Asp Phe Arg Ile Tyr Asn Val Thr Tyr Leu Glu Pro Ser Leu Arg	
405 410 415	
atc gca gcc agc acc ctg aag tct ggg att tcc tac agg gca cgg gtg	1296
Ile Ala Ala Ser Thr Leu Lys Ser Gly Ile Ser Tyr Arg Ala Arg Val	
420 425 430	
agg gcc tgg gct cag agc tat aac acc acc tgg agt gag tgg agc ccc	1344
Arg Ala Trp Ala Gln Ser Tyr Asn Thr Thr Trp Ser Glu Trp Ser Pro	
435 440 445	
agc acc aag tgg cac aac tcc tac agg gag ccc ttc gag cag tcc gga	1392
Ser Thr Lys Trp His Asn Ser Tyr Arg Glu Pro Phe Glu Gln Ser Gly	
450 455 460	
gac aaa act cac aca tgc cca ccg tgc cca gca cct gaa ctc ctg ggg	1440
Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly	
465 470 475 480	
gga ccg tca gtc ttc ctc ttc ccc cca aaa ccc aag gac acc ctc atg	1488
Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Lys Asp Thr Leu Met	
485 490 495	
atc tcc cgg acc cct gag gtc aca tgc gtg gtg gtg gac gtg agc cac	1536

Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His		
			500					505					510				
gaa	gac	cct	gag	gtc	aag	ttc	aac	tgg	tac	gtg	gac	ggc	gtg	gag	gtg	1584	
Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val		
		515					520					525					
cat	aat	gcc	aag	aca	aag	ccg	cgg	gag	gag	cag	tac	aac	agc	acg	tac	1632	
His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr		
	530					535					540						
cgt	gtg	gtc	agc	gtc	ctc	acc	gtc	ctg	cac	cag	gac	tgg	ctg	aat	ggc	1680	
Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly		
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aag	gag	tac	aag	tgc	aag	gtc	tcc	aac	aaa	gcc	ctc	cca	gcc	ccc	atc	1728	
Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile		
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gag	aaa	acc	atc	tcc	aaa	gcc	aaa	ggg	cag	ccc	cga	gaa	cca	cag	gtg	1776	
Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val		
			580					585						590			
tac	acc	ctg	ccc	cca	tcc	cgg	gat	gag	ctg	acc	aag	aac	cag	gtc	agc	1824	
Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser		
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ctg	acc	tgc	ctg	gtc	aaa	ggc	ttc	tat	ccc	agc	gac	atc	gcc	gtg	gag	1872	
Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu		
	610					615					620						
tgg	gag	agc	aat	ggg	cag	ccg	gag	aac	aac	tac	aag	acc	acg	cct	ccc	1920	
Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro		
625					630					635					640		
gtg	ctg	gac	tcc	gac	ggc	tcc	ttc	ttc	ctc	tat	agc	aag	ctc	acc	gtg	1968	
Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val		
				645					650						655		
gac	aag	agc	agg	tgg	cag	cag	ggg	aac	gtc	ttc	tca	tgc	tcc	gtg	atg	2016	
Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met		
			660				665						670				
cat	gag	gct	ctg	cac	aac	cac	tac	acg	cag	aag	agc	ctc	tcc	ctg	tct	2064	
His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser		
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Pro	Gly	Lys															
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Ser	Leu	Ser	Val	Ser	Thr	Leu	Pro	Leu	Pro	Glu	Val	Gln	Cys	Phe	Val
	50					55					60				
Phe	Asn	Val	Glu	Tyr	Met	Asn	Cys	Thr	Trp	Asn	Ser	Ser	Ser	Glu	Pro
65					70					75					80
Gln	Pro	Thr	Asn	Leu	Thr	Leu	His	Tyr	Trp	Tyr	Lys	Asn	Ser	Asp	Asn
				85					90					95	
Asp	Lys	Val	Gln	Lys	Cys	Ser	His	Tyr	Leu	Phe	Ser	Glu	Glu	Ile	Thr
			100					105					110		
Ser	Gly	Cys	Gln	Leu	Gln	Lys	Lys	Glu	Ile	His	Leu	Tyr	Gln	Thr	Phe
		115					120					125			
Val	Val	Gln	Leu	Gln	Asp	Pro	Arg	Glu	Pro	Arg	Arg	Gln	Ala	Thr	Gln
	130					135					140				
Met	Leu	Lys	Leu	Gln	Asn	Leu	Val	Ile	Pro	Trp	Ala	Pro	Glu	Asn	Leu
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Thr	Leu	His	Lys	Leu	Ser	Glu	Ser	Gln	Leu	Glu	Leu	Asn	Trp	Asn	Asn
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Arg	Phe	Leu	Asn	His	Cys	Leu	Glu	His	Leu	Val	Gln	Tyr	Arg	Thr	Asp
			180					185					190		
Trp	Asp	His	Ser	Trp	Thr	Glu	Gln	Ser	Val	Asp	Tyr	Arg	His	Lys	Phe
		195					200					205			
Ser	Leu	Pro	Ser	Val	Asp	Gly	Gln	Lys	Arg	Tyr	Thr	Phe	Arg	Val	Arg
	210					215					220				
Ser	Arg	Phe	Asn	Pro	Leu	Cys	Gly	Ser	Ala	Gln	His	Trp	Ser	Glu	Trp
225					230					235					240
Ser	His	Pro	Ile	His	Trp	Gly	Ser	Asn	Thr	Ser	Lys	Glu	Asn	Gly	Asn
				245					250					255	
Met	Lys	Val	Leu	Gln	Glu	Pro	Thr	Cys	Val	Ser	Asp	Tyr	Met	Ser	Ile
			260					265					270		
Ser	Thr	Cys	Glu	Trp	Lys	Met	Asn	Gly	Pro	Thr	Asn	Cys	Ser	Thr	Glu
		275					280					285			
Leu	Arg	Leu	Leu	Tyr	Gln	Leu	Val	Phe	Leu	Leu	Ser	Glu	Ala	His	Thr
	290					295					300				
Cys	Ile	Pro	Glu	Asn	Asn	Gly	Gly	Ala	Gly	Cys	Val	Cys	His	Leu	Leu
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Met	Asp	Asp	Val	Val	Ser	Ala	Asp	Asn	Tyr	Thr	Leu	Asp	Leu	Trp	Ala
				325					330					335	
Gly	Gln	Gln	Leu	Leu	Trp	Lys	Gly	Ser	Phe	Lys	Pro	Ser	Glu	His	Val
			340					345					350		
Lys	Pro	Arg	Ala	Pro	Gly	Asn	Leu	Thr	Val	His	Thr	Asn	Val	Ser	Asp
		355					360					365			
Thr	Leu	Leu	Leu	Thr	Trp	Ser	Asn	Pro	Tyr	Pro	Pro	Asp	Asn	Tyr	Leu
	370				</										

Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val
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 His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr
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 Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly
 545 550 555 560
 Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile
 565 570 575
 Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val
 580 585 590
 Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser
 595 600 605
 Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu
 610 615 620
 Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro
 625 630 635 640
 Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val
 645 650 655
 Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met
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 Pro Gly Lys
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 Pro Leu Leu Gly Val Gly Leu Asn Thr Thr Ile Leu Thr Pro Asn Gly
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 aat gaa gac acc aca gct gat ttc ttc ctg acc act atg ccc act gac 144
 Asn Glu Asp Thr Thr Ala Asp Phe Phe Leu Thr Thr Met Pro Thr Asp
 35 40 45
 tcc ctc agt gtt tcc act ctg ccc ctc cca gag gtt cag tgt ttt gtg 192
 Ser Leu Ser Val Ser Thr Leu Pro Leu Pro Glu Val Gln Cys Phe Val
 50 55 60
 ttc aat gtc gag tac atg aat tgc act tgg aac agc agc tct gag ccc 240
 Phe Asn Val Glu Tyr Met Asn Cys Thr Trp Asn Ser Ser Ser Glu Pro
 65 70 75 80
 cag cct acc aac ctc act ctg cat tat tgg tac aag aac tcg gat aat 288
 Gln Pro Thr Asn Leu Thr Leu His Tyr Trp Tyr Lys Asn Ser Asp Asn
 85 90 95
 gat aaa gtc cag aag tgc agc cac tat cta ttc tct gaa gaa atc act 336
 Asp Lys Val Gln Lys Cys Ser His Tyr Leu Phe Ser Glu Glu Ile Thr

100	105	110	
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ggt gtt cag ctc cag gac cca cgg gaa ccc agg aga cag gcc aca cag Val Val Gln Leu Gln Asp Pro Arg Glu Pro Arg Arg Gln Ala Thr Gln 130 135 140			432
atg cta aaa ctg cag aat ctg gtg atc ccc tgg gct cca gag aac cta Met Leu Lys Leu Gln Asn Leu Val Ile Pro Trp Ala Pro Glu Asn Leu 145 150 155 160			480
aca ctt cac aaa ctg agt gaa tcc cag cta gaa ctg aac tgg aac aac Thr Leu His Lys Leu Ser Glu Ser Gln Leu Glu Leu Asn Trp Asn Asn 165 170 175			528
aga ttc ttg aac cac tgt ttg gag cac ttg gtg cag tac cgg act gac Arg Phe Leu Asn His Cys Leu Glu His Leu Val Gln Tyr Arg Thr Asp 180 185 190			576
tgg gac cac agc tgg act gaa caa tca gtg gat tat aga cat aag ttc Trp Asp His Ser Trp Thr Glu Gln Ser Val Asp Tyr Arg His Lys Phe 195 200 205			624
tcc ttg cct agt gtg gat ggg cag aaa cgc tac acg ttt cgt gtt cgg Ser Leu Pro Ser Val Asp Gly Gln Lys Arg Tyr Thr Phe Arg Val Arg 210 215 220			672
agc cgc ttt aac cca ctc tgt gga agt gct cag cat tgg agt gaa tgg Ser Arg Phe Asn Pro Leu Cys Gly Ser Ala Gln His Trp Ser Glu Trp 225 230 235 240			720
agc cac cca atc cac tgg ggg agc aat act tca aaa gag aac gcg tcg Ser His Pro Ile His Trp Gly Ser Asn Thr Ser Lys Glu Asn Ala Ser 245 250 255			768
tct ggg aac atg aag gtc ctg cag gag ccc acc tgc gtc tcc gac tac Ser Gly Asn Met Lys Val Leu Gln Glu Pro Thr Cys Val Ser Asp Tyr 260 265 270			816
atg agc atc tct act tgc gag tgg aag atg aat ggt ccc acc aat tgc Met Ser Ile Ser Thr Cys Glu Trp Lys Met Asn Gly Pro Thr Asn Cys 275 280 285			864
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cac ctg ctc atg gat gac gtg gtc agt gcg gat aac tat aca ctg gac His Leu Leu Met Asp Asp Val Val Ser Ala Asp Asn Tyr Thr Leu Asp 325 330 335			1008
ctg tgg gct ggg cag cag ctg ctg tgg aag ggc tcc ttc aag ccc agc Leu Trp Ala Gly Gln Gln Leu Leu Trp Lys Gly Ser Phe Lys Pro Ser 340 345 350			1056

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Glu His Val Lys Pro Arg Ala Pro Gly Asn Leu Thr Val His Thr Asn	
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gtc tcc gac act ctg ctg ctg acc tgg agc aac ccg tat ccc cct gac	1152
Val Ser Asp Thr Leu Leu Leu Thr Trp Ser Asn Pro Tyr Pro Pro Asp	
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aat tac ctg tat aat cat ctc acc tat gca gtc aac att tgg agt gaa	1200
Asn Tyr Leu Tyr Asn His Leu Thr Tyr Ala Val Asn Ile Trp Ser Glu	
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aac gac ccg gca gat ttc aga atc tat aac gtg acc tac cta gaa ccc	1248
Asn Asp Pro Ala Asp Phe Arg Ile Tyr Asn Val Thr Tyr Leu Glu Pro	
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Ser Leu Arg Ile Ala Ala Ser Thr Leu Lys Ser Gly Ile Ser Tyr Arg	
420 425 430	
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Ala Arg Val Arg Ala Trp Ala Gln Ser Tyr Asn Thr Thr Trp Ser Glu	
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Trp Ser Pro Ser Thr Lys Trp His Asn Ser Tyr Arg Glu Pro Phe Glu	
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Gln Ser Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu	
465 470 475 480	
ctc ctg ggg gga ccg tca gtc ttc ctc ttc ccc cca aaa ccc aag gac	1488
Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp	
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acc ctc atg atc tcc cgg acc cct gag gtc aca tgc gtg gtg gtg gac	1536
Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp	
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Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly	
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Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn	
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Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp	
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Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro	
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Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu	
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Phe Asn Val Glu Tyr Met Asn Cys Thr Trp Asn Ser Ser Ser Glu Pro	
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Gln Pro Thr Asn Leu Thr Leu His Tyr Trp Tyr Lys Asn Ser Asp Asn	
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Asp Lys Val Gln Lys Cys Ser His Tyr Leu Phe Ser Glu Glu Ile Thr	
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Ser Gly Cys Gln Leu Gln Lys Lys Glu Ile His Leu Tyr Gln Thr Phe	
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Val Val Gln Leu Gln Asp Pro Arg Glu Pro Arg Arg Gln Ala Thr Gln	
130 135 140	
Met Leu Lys Leu Gln Asn Leu Val Ile Pro Trp Ala Pro Glu Asn Leu	
145 150 155 160	
Thr Leu His Lys Leu Ser Glu Ser Gln Leu Glu Leu Asn Trp Asn Asn	
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Arg Phe Leu Asn His Cys Leu Glu His Leu Val Gln Tyr Arg Thr Asp	
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Trp Asp His Ser Trp Thr Glu Gln Ser Val Asp Tyr Arg His Lys Phe	
195 200 205	

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Ser	Arg	Phe	Asn	Pro	Leu	Cys	Gly	Ser	Ala	Gln	His	Trp	Ser	Glu	Trp
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Ser	His	Pro	Ile	His	Trp	Gly	Ser	Asn	Thr	Ser	Lys	Glu	Asn	Ala	Ser
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Ser	Gly	Asn	Met	Lys	Val	Leu	Gln	Glu	Pro	Thr	Cys	Val	Ser	Asp	Tyr
		260						265					270		
Met	Ser	Ile	Ser	Thr	Cys	Glu	Trp	Lys	Met	Asn	Gly	Pro	Thr	Asn	Cys
		275					280					285			
Ser	Thr	Glu	Leu	Arg	Leu	Leu	Tyr	Gln	Leu	Val	Phe	Leu	Leu	Ser	Glu
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Ala	His	Thr	Cys	Ile	Pro	Glu	Asn	Asn	Gly	Gly	Ala	Gly	Cys	Val	Cys
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His	Leu	Leu	Met	Asp	Asp	Val	Val	Ser	Ala	Asp	Asn	Tyr	Thr	Leu	Asp
			325						330					335	
Leu	Trp	Ala	Gly	Gln	Gln	Leu	Leu	Trp	Lys	Gly	Ser	Phe	Lys	Pro	Ser
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Glu	His	Val	Lys	Pro	Arg	Ala	Pro	Gly	Asn	Leu	Thr	Val	His	Thr	Asn
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Val	Ser	Asp	Thr	Leu	Leu	Leu	Thr	Trp	Ser	Asn	Pro	Tyr	Pro	Pro	Asp
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Gln	Ser	Gly	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu
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Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp
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Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp
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Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn
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Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp
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Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro
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Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn
		595					600					605			
Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile
	610					615					620				
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Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys
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Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu
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Gly Val Leu Thr Ser Leu Pro Gly Asp Ser Val Thr Leu Thr Cys Pro	
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Gly Val Glu Pro Glu Asp Asn Ala Thr Val His Trp Val Leu Arg Lys	
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Leu Leu Leu Arg Ser Val Gln Leu His Asp Ser Gly Asn Tyr Ser Cys	
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Tyr Arg Ala Gly Arg Pro Ala Gly Thr Val His Leu Leu Val Asp Val	
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Pro Pro Glu Glu Pro Gln Leu Ser Cys Phe Arg Lys Ser Pro Leu Ser	
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Asn Val Val Cys Glu Trp Gly Pro Arg Ser Thr Pro Ser Leu Thr Thr	
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Phe Gln Glu Pro Cys Gln Tyr Ser Gln Glu Ser Gln Lys Phe Ser Cys	
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Gln Leu Ala Val Pro Glu Gly Asp Ser Ser Phe Tyr Ile Val Ser Met	
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Cys Val Ala Ser Ser Val Gly Ser Lys Phe Ser Lys Thr Gln Thr Phe	
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Tyr Arg Ala Glu Arg Ser Lys Thr Phe Thr Thr Trp Met Val Lys Asp	
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Glu Trp Ser Pro Glu Ala Met Gly Thr Pro Trp Thr Glu Ser Arg Ser	
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Val Trp Lys Thr Asn His Phe Thr Ile Pro Lys Glu Gln Tyr Thr Ile	
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Ile Asn Arg Thr Ala Ser Ser Val Thr Phe Thr Asp Ile Ala Ser Leu	
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Thr Pro Thr Ser Cys Thr Val Asp Tyr Ser Thr Val Tyr Phe Val Asn			
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cca gta tat gct gat gga cca gga agc cct gaa tcc ata aag gca tac Pro Val Tyr Ala Asp Gly Pro Gly Ser Pro Glu Ser Ile Lys Ala Tyr 820 825 830	2496
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cac aca tgc cca ccg tgc cca gca cct gaa ctc ctg ggg gga ccg tca	2880
His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser	
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Val Phe Leu Phe 965 Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg	
970 975	
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Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro	
980 985 990	
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Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val	
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Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr	
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Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr	
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Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu	
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Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys	
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Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser	
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Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala	
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 Tyr Arg Ala Gly Arg Pro Ala Gly Thr Val His Leu Leu Val Asp Val
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 Pro Pro Glu Glu Pro Gln Leu Ser Cys Phe Arg Lys Ser Pro Leu Ser
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 Gln Leu Ala Val Pro Glu Gly Asp Ser Phe Tyr Ile Val Ser Met
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 Cys Val Ala Ser Ser Val Gly Ser Lys Phe Ser Lys Thr Gln Thr Phe
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 Gln Gly Cys Gly Ile Leu Gln Pro Asp Pro Pro Ala Asn Ile Thr Val
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 Thr Ala Val Ala Arg Asn Pro Arg Trp Leu Ser Val Thr Trp Gln Asp
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 Pro His Ser Trp Asn Ser Ser Phe Tyr Arg Leu Arg Phe Glu Leu Arg
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 Tyr Arg Ala Glu Arg Ser Lys Thr Phe Thr Thr Trp Met Val Lys Asp
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 Leu Gln His His Cys Val Ile His Asp Ala Trp Ser Gly Leu Arg His
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 Val Val Gln Leu Arg Ala Gln Glu Glu Phe Gly Gln Gly Glu Trp Ser
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 Glu Trp Ser Pro Glu Ala Met Gly Thr Pro Trp Thr Glu Ser Arg Ser
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 Pro Pro Ala Glu Asn Glu Val Ser Thr Pro Met Thr Gly Gly Ala Pro
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 Ser Gly Ala Gln Leu Glu Leu Leu Asp Pro Cys Gly Tyr Ile Ser Pro
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 Glu Ser Pro Val Val Gln Leu His Ser Asn Phe Thr Ala Val Cys Val
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 Val Trp Lys Thr Asn His Phe Thr Ile Pro Lys Glu Gln Tyr Thr Ile
 385 390 395 400
 Ile Asn Arg Thr Ala Ser Ser Val Thr Phe Thr Asp Ile Ala Ser Leu
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 Asn Ile Gln Leu Thr Cys Asn Ile Leu Thr Phe Gly Gln Leu Glu Gln
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32

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Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys
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Gly Ala Ala Leu Ala Pro Arg Arg Cys Pro Ala Gln Glu Val Ala Arg	
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ggc gtg ctg acc agt ctg cca gga gac agc gtg act ctg acc tgc ccg	144
Gly Val Leu Thr Ser Leu Pro Gly Asp Ser Val Thr Leu Thr Cys Pro	
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Gly Val Glu Pro Glu Asp Asn Ala Thr Val His Trp Val Leu Arg Lys	
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ccg gct gca ggc tcc cac ccc agc aga tgg gct gcc atg gga agg agg	240
Pro Ala Ala Gly Ser His Pro Ser Arg Trp Ala Gly Met Gly Arg Arg	
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Leu Leu Leu Arg Ser Val Gln Leu His Asp Ser Gly Asn Tyr Ser Cys	
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Tyr Arg Ala Gly Arg Pro Ala Gly Thr Val His Leu Leu Val Asp Val	
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ccc ccc gag gag ccc cag ctc tcc tgc ttc cgg aag agc ccc ctc agc	384
Pro Pro Glu Glu Pro Gln Leu Ser Cys Phe Arg Lys Ser Pro Leu Ser	
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Asn Val Val Cys Glu Trp Gly Pro Arg Ser Thr Pro Ser Leu Thr Thr	
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Lys Ala Val Leu Leu Val Arg Lys Phe Gln Asn Ser Pro Ala Glu Asp	
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Phe Gln Glu Pro Cys Gln Tyr Ser Gln Glu Ser Gln Lys Phe Ser Cys	
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Gln Leu Ala Val Pro Glu Gly Asp Ser Ser Phe Tyr Ile Val Ser Met	
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Gln Gly Cys Gly Ile Leu Gln Pro Asp Pro Pro Ala Asn Ile Thr Val	
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Thr Ala Val Ala Arg Asn Pro Arg Trp Leu Ser Val Thr Trp Gln Asp	
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Pro His Ser Trp Asn Ser Ser Phe Tyr Arg Leu Arg Phe Glu Leu Arg	
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Tyr Arg Ala Glu Arg Ser Lys Thr Phe Thr Thr Trp Met Val Lys Asp	
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Leu Gln His His Cys Val Ile His Asp Ala Trp Ser Gly Leu Arg His	
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Val Val Gln Leu Arg Ala Gln Glu Glu Phe Gly Gln Gly Glu Trp Ser	
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Glu Trp Ser Pro Glu Ala Met Gly Thr Pro Trp Thr Glu Ser Arg Ser	
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Pro Pro Ala Glu Asn Glu Val Ser Thr Pro Met Glu Leu Leu Asp Pro	
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Cys Gly Tyr Ile Ser Pro Glu Ser Pro Val Val Gln Leu His Ser Asn	
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Val Asn Ala Asn Tyr Ile Val Trp Lys Thr Asn His Phe Thr Ile Pro	
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Lys Glu Gln Tyr Thr Ile Ile Asn Arg Thr Ala Ser Ser Val Thr Phe	
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Thr Asp Ile Ala Ser Leu Asn Ile Gln Leu Thr Cys Asn Ile Leu Thr	
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Phe Gly Gln Leu Glu Gln Asn Val Tyr Gly Ile Thr Ile Ile Ser Gly	
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Leu Pro Pro Glu Lys Pro Lys Asn Leu Ser Cys Ile Val Asn Glu Gly	
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Lys Lys Met Arg Cys Glu Trp Asp Gly Gly Arg Glu Thr His Leu Glu	
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Cys Lys Ala Lys Arg Asp Thr Pro Thr Ser Cys Thr Val Asp Tyr Ser	
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Thr Val Tyr Phe Val Asn Ile Glu Val Trp Val Glu Ala Glu Asn Ala	
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Leu Gly Lys Val Thr Ser Asp His Ile Asn Phe Asp Pro Val Tyr Lys	
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Val Lys Pro Asn Pro Pro His Asn Leu Ser Val Ile Asn Ser Glu Glu	
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Leu Ser Ser Ile Leu Lys Leu Thr Trp Thr Asn Pro Ser Ile Lys Ser	
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gtt ata ata cta aaa tat aac att caa tat agg acc aaa gat gcc tca	1728

Val	Ile	Ile	Leu	Lys	Tyr	Asn	Ile	Gln	Tyr	Arg	Thr	Lys	Asp	Ala	Ser		
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Thr	Trp	Ser	Gln	Ile	Pro	Pro	Glu	Asp	Thr	Ala	Ser	Thr	Arg	Ser	Ser		
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ttc	act	gtc	caa	gac	ctt	aaa	cct	ttt	aca	gaa	tat	gtg	ttt	agg	att	1824	
Phe	Thr	Val	Gln	Asp	Leu	Lys	Pro	Phe	Thr	Glu	Tyr	Val	Phe	Arg	Ile		
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cgc	tgt	atg	aag	gaa	gat	ggg	aag	gga	tac	tgg	agt	gac	tgg	agt	gaa	1872	
Arg	Cys	Met	Lys	Glu	Asp	Gly	Lys	Gly	Tyr	Trp	Ser	Asp	Trp	Ser	Glu		
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gaa	gca	agt	ggg	atc	acc	tat	gaa	gat	aga	cca	tct	aaa	gca	cca	agt	1920	
Glu	Ala	Ser	Gly	Ile	Thr	Tyr	Glu	Asp	Arg	Pro	Ser	Lys	Ala	Pro	Ser		
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Phe	Trp	Tyr	Lys	Ile	Asp	Pro	Ser	His	Thr	Gln	Gly	Tyr	Arg	Thr	Val		
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caa	ctc	gtg	tgg	aag	aca	ttg	cct	cct	ttt	gaa	gcc	aat	gga	aaa	atc	2016	
Gln	Leu	Val	Trp	Lys	Thr	Leu	Pro	Pro	Phe	Glu	Ala	Asn	Gly	Lys	Ile		
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Tyr	Thr	Val	Asn	Ala	Thr	Lys	Leu	Thr	Val	Asn	Leu	Thr	Asn	Asp	Arg		
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tat	cta	gca	acc	cta	aca	gta	aga	aat	ctt	gtt	ggc	aaa	tca	gat	gca	2160	
Tyr	Leu	Ala	Thr	Leu	Thr	Val	Arg	Asn	Leu	Val	Gly	Lys	Ser	Asp	Ala		
705					710				715						720		
gct	gtt	tta	act	atc	cct	gcc	tgt	gac	ttt	caa	gct	act	cac	cct	gta	2208	
Ala	Val	Leu	Thr	Ile	Pro	Ala	Cys	Asp	Phe	Gln	Ala	Thr	His	Pro	Val		
				725					730					735			
atg	gat	ctt	aaa	gca	ttc	ccc	aaa	gat	aac	atg	ctt	tgg	gtg	gaa	tgg	2256	
Met	Asp	Leu	Lys	Ala	Phe	Pro	Lys	Asp	Asn	Met	Leu	Trp	Val	Glu	Trp		
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act	act	cca	agg	gaa	tct	gta	aag	aaa	tat	ata	ctt	gag	tgg	tgt	gtg	2304	
Thr	Thr	Pro	Arg	Glu	Ser	Val	Lys	Lys	Tyr	Ile	Leu	Glu	Trp	Cys	Val		
		755					760					765					
tta	tca	gat	aaa	gca	ccc	tgt	atc	aca	gac	tgg	caa	caa	gaa	gat	ggg	2352	
Leu	Ser	Asp	Lys	Ala	Pro	Cys	Ile	Thr	Asp	Trp	Gln	Gln	Glu	Asp	Gly		
		770				775					780						
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Thr	Val	His	Arg	Thr	Tyr	Leu	Arg	Gly	Asn	Leu	Ala	Glu	Ser	Lys	Cys		
785					790				795						800		
tat	ttg	ata	aca	gtt	act	cca	gta	tat	gct	gat	gga	cca	gga	agc	cct	2448	
Tyr	Leu	Ile	Thr	Val	Thr	Pro	Val	Tyr	Ala	Asp	Gly	Pro	Gly	Ser	Pro		

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835 840 845																
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850 855 860																
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930 935 940																
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Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn	
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Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile	
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Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr	
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Pro Ala Ala Gly Ser His Pro Ser Arg Trp Ala Gly Met Gly Arg Arg	
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Tyr Arg Ala Gly Arg Pro Ala Gly Thr Val His Leu Leu Val Asp Val	
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Pro	His	Ser	Trp	Asn	Ser	Ser	Phe	Tyr	Arg	Leu	Arg	Phe	Glu	Leu	Arg
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Tyr	Arg	Ala	Glu	Arg	Ser	Lys	Thr	Phe	Thr	Thr	Trp	Met	Val	Lys	Asp
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Leu	Gln	His	His	Cys	Val	Ile	His	Asp	Ala	Trp	Ser	Gly	Leu	Arg	His
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Val	Val	Gln	Leu	Arg	Ala	Gln	Glu	Glu	Phe	Gly	Gln	Gly	Glu	Trp	Ser
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Glu	Trp	Ser	Pro	Glu	Ala	Met	Gly	Thr	Pro	Trp	Thr	Glu	Ser	Arg	Ser
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Pro	Pro	Ala	Glu	Asn	Glu	Val	Ser	Thr	Pro	Met	Glu	Leu	Leu	Asp	Pro
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Cys	Gly	Tyr	Ile	Ser	Pro	Glu	Ser	Pro	Val	Val	Gln	Leu	His	Ser	Asn
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Phe	Thr	Ala	Val	Cys	Val	Leu	Lys	Glu	Lys	Cys	Met	Asp	Tyr	Phe	His
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Val	Asn	Ala	Asn	Tyr	Ile	Val	Trp	Lys	Thr	Asn	His	Phe	Thr	Ile	Pro
			370			375					380				
Lys	Glu	Gln	Tyr	Thr	Ile	Ile	Asn	Arg	Thr	Ala	Ser	Ser	Val	Thr	Phe
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Thr	Asp	Ile	Ala	Ser	Leu	Asn	Ile	Gln	Leu	Thr	Cys	Asn	Ile	Leu	Thr
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Phe	Gly	Gln	Leu	Glu	Gln	Asn	Val	Tyr	Gly	Ile	Thr	Ile	Ile	Ser	Gly
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Lys	Lys	Met	Arg	Cys	Glu	Trp	Asp	Gly	Gly	Arg	Glu	Thr	His	Leu	Glu
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Thr	Asn	Phe	Thr	Leu	Lys	Ser	Glu	Trp	Ala	Thr	His	Lys	Phe	Ala	Asp
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Cys	Lys	Ala	Lys	Arg	Asp	Thr	Pro	Thr	Ser	Cys	Thr	Val	Asp	Tyr	Ser
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Val	Lys	Pro	Asn	Pro	Pro	His	Asn	Leu	Ser	Val	Ile	Asn	Ser	Glu	Glu
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Leu	Ser	Ser	Ile	Leu	Lys	Leu	Thr	Trp	Thr	Asn	Pro	Ser	Ile	Lys	Ser
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Val	Ile	Ile	Leu	Lys	Tyr	Asn	Ile	Gln	Tyr	Arg	Thr	Lys	Asp	Ala	Ser
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Thr	Trp	Ser	Gln	Ile	Pro	Pro	Glu	Asp	Thr	Ala	Ser	Thr	Arg	Ser	Ser
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Phe	Thr	Val	Gln	Asp	Leu	Lys	Pro	Phe	Thr	Glu	Tyr	Val	Phe	Arg	Ile
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Glu	Ala	Ser	Gly	Ile	Thr	Tyr	Glu	Asp	Arg	Pro	Ser	Lys	Ala	Pro	Ser
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Phe	Trp	Tyr	Lys	Ile	Asp	Pro	Ser	His	Thr	Gln	Gly	Tyr	Arg	Thr	Val
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Gln	Leu	Val	Trp	Lys	Thr	Leu	Pro	Pro	Phe	Glu	Ala	Asn	Gly	Lys	Ile
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Leu	Asp	Tyr	Glu	Val	Thr	Leu	Thr	Arg	Trp	Lys	Ser	His	Leu	Gln	Asn
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Tyr	Thr	Val	Asn	Ala	Thr	Lys	Leu	Thr	Val	Asn	Leu	Thr	Asn	Asp	Arg	690	695	700
Tyr	Leu	Ala	Thr	Leu	Thr	Val	Arg	Asn	Leu	Val	Gly	Lys	Ser	Asp	Ala	705	710	715
Ala	Val	Leu	Thr	Ile	Pro	Ala	Cys	Asp	Phe	Gln	Ala	Thr	His	Pro	Val	725	730	735
Met	Asp	Leu	Lys	Ala	Phe	Pro	Lys	Asp	Asn	Met	Leu	Trp	Val	Glu	Trp	740	745	750
Thr	Thr	Pro	Arg	Glu	Ser	Val	Lys	Lys	Tyr	Ile	Leu	Glu	Trp	Cys	Val	755	760	765
Leu	Ser	Asp	Lys	Ala	Pro	Cys	Ile	Thr	Asp	Trp	Gln	Gln	Glu	Asp	Gly	770	775	780
Thr	Val	His	Arg	Thr	Tyr	Leu	Arg	Gly	Asn	Leu	Ala	Glu	Ser	Lys	Cys	785	790	795
Tyr	Leu	Ile	Thr	Val	Thr	Pro	Val	Tyr	Ala	Asp	Gly	Pro	Gly	Ser	Pro	805	810	815
Glu	Ser	Ile	Lys	Ala	Tyr	Leu	Lys	Gln	Ala	Pro	Pro	Ser	Lys	Gly	Pro	820	825	830
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Ile	Phe	Tyr	Arg	Thr	Ile	Ile	Gly	Asn	Glu	Thr	Ala	Val	Asn	Val	Asp	865	870	875
Ser	Ser	His	Thr	Glu	Tyr	Thr	Leu	Ser	Ser	Leu	Thr	Ser	Asp	Thr	Leu	885	890	895
Tyr	Met	Val	Arg	Met	Ala	Ala	Tyr	Thr	Asp	Glu	Gly	Gly	Lys	Asp	Gly	900	905	910
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Ser	Gly	Gly	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	930	935	940
Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	945	950	955
Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	965	970	975
Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	980	985	990
Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	995	1000	1005
Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	1010	1015	1020
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Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	1045	1050	1055
Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	1060	1065	1070
Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	1075	1080	1085
Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	1090	1095	1100
Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	1105	1110	1115
Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	1125	1130	1135
Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	1140	1145	1150
Ser	Leu	Ser	Pro	Gly	Lys											1155		

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caa agt gat gcc tca gaa cgc tgc gat gac tgg gga cta gac acc atg      96
Gln Ser Asp Ala Ser Glu Arg Cys Asp Asp Trp Gly Leu Asp Thr Met
              20              25              30

agg caa atc caa gtg ttt gaa gat gag cca gct cgc atc aag tgc cca     144
Arg Gln Ile Gln Val Phe Glu Asp Glu Pro Ala Arg Ile Lys Cys Pro
              35              40              45

ctc ttt gaa cac ttc ttg aaa ttc aac tac agc aca gcc cat tca gct     192
Leu Phe Glu His Phe Leu Lys Phe Asn Tyr Ser Thr Ala His Ser Ala
              50              55              60

ggc ctt act ctg atc tgg tat tgg act agg cag gac cgg gac ctt gag     240
Gly Leu Thr Leu Ile Trp Tyr Trp Thr Arg Gln Asp Arg Asp Leu Glu
  65              70              75              80

gag cca att aac ttc cgc ctc ccc gag aac cgc att agt aag gag aaa     288
Glu Pro Ile Asn Phe Arg Leu Pro Glu Asn Arg Ile Ser Lys Glu Lys
              85              90              95

gat gtg ctg tgg ttc cgg ccc act ctc ctc aat gac act ggc aac tat     336
Asp Val Leu Trp Phe Arg Pro Thr Leu Leu Asn Asp Thr Gly Asn Tyr
              100              105              110

acc tgc atg tta agg aac act aca tat tgc agc aaa gtt gca ttt ccc     384
Thr Cys Met Leu Arg Asn Thr Thr Tyr Cys Ser Lys Val Ala Phe Pro
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ttg gaa gtt gtt caa aaa gac agc tgt ttc aat tcc ccc atg aaa ctc     432
Leu Glu Val Val Gln Lys Asp Ser Cys Phe Asn Ser Pro Met Lys Leu
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cca gtg cat aaa ctg tat ata gaa tat ggc att cag agg atc act tgt     480
Pro Val His Lys Leu Tyr Ile Glu Tyr Gly Ile Gln Arg Ile Thr Cys
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cca aat gta gat gga tat ttt cct tcc agt gtc aaa ccg act atc act     528
Pro Asn Val Asp Gly Tyr Phe Pro Ser Ser Val Lys Pro Thr Ile Thr
              165              170              175

tgg tat atg ggc tgt tat aaa ata cag aat ttt aat aat gta ata ccc     576
Trp Tyr Met Gly Cys Tyr Lys Ile Gln Asn Phe Asn Asn Val Ile Pro
              180              185              190

gaa ggt atg aac ttg agt ttc ctc att gcc tta att tca aat aat gga     624
Glu Gly Met Asn Leu Ser Phe Leu Ile Ala Leu Ile Ser Asn Asn Gly
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ctc acc agg act ctg act gta aag gta gta ggc tct cca aaa aat gca Leu Thr Arg Thr Leu Thr Val Lys Val Val Gly Ser Pro Lys Asn Ala 225 230 235 240	720
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gaa cca gga gag gag cta ctc att ccc tgt acg gtc tat ttt agt ttt Glu Pro Gly Glu Glu Leu Leu Ile Pro Cys Thr Val Tyr Phe Ser Phe 260 265 270	816
ctg atg gat tct cgc aat gag gtt tgg tgg acc att gat gga aaa aaa Leu Met Asp Ser Arg Asn Glu Val Trp Trp Thr Ile Asp Gly Lys Lys 275 280 285	864
cct gat gac atc act att gat gtc acc att aac gaa agt ata agt cat Pro Asp Asp Ile Thr Ile Asp Val Thr Ile Asn Glu Ser Ile Ser His 290 295 300	912
agt aga aca gaa gat gaa aca aga act cag att ttg agc atc aag aaa Ser Arg Thr Glu Asp Glu Thr Arg Thr Gln Ile Leu Ser Ile Lys Lys 305 310 315 320	960
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cct gct aag gtg gag gat tca gga cat tac tat tgc gtg gta aga aat Pro Ala Lys Val Glu Asp Ser Gly His Tyr Tyr Cys Val Val Arg Asn 435 440 445	1344

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Glu Pro Asn Leu Cys Tyr Asn Ala Gln Ala Ile Phe Lys Gln Lys Leu	
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Pro Val Ala Gly Asp Gly Gly Leu Val Cys Pro Tyr Met Glu Phe Phe	
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Lys Asn Glu Asn Asn Glu Leu Pro Lys Leu Gln Trp Tyr Lys Asp Cys	
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Lys Pro Leu Leu Leu Asp Asn Ile His Phe Ser Gly Val Lys Asp Arg	
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Leu Ile Val Met Asn Val Ala Glu Lys His Arg Gly Asn Tyr Thr Cys	
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His Ala Ser Tyr Thr Tyr Leu Gly Lys Gln Tyr Pro Ile Thr Arg Val	
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Ile Glu Phe Ile Thr Leu Glu Glu Asn Lys Pro Thr Arg Pro Val Ile	
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Gln Leu Ile Cys Asn Val Thr Gly Gln Leu Ser Asp Ile Ala Tyr Trp	
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Ile Gln Leu Ile Tyr Pro Val Thr Asn Ser Gly Asp Lys Thr His Thr	
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Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr		
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Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val		
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Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His		
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Leu	Phe	Glu	His	Phe	Leu	Lys	Phe	Asn	Tyr	Ser	Thr	Ala	His	Ser	Ala
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Gly	Leu	Thr	Leu	Ile	Trp	Tyr	Trp	Thr	Arg	Gln	Asp	Arg	Asp	Leu	Glu
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Asp	Val	Leu	Trp	Phe	Arg	Pro	Thr	Leu	Leu	Asn	Asp	Thr	Gly	Asn	Tyr
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Trp	Tyr	Met	Gly	Cys	Tyr	Lys	Ile	Gln	Asn	Phe	Asn	Asn	Val	Ile	Pro
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Glu	Gly	Met	Asn	Leu	Ser	Phe	Leu	Ile	Ala	Leu	Ile	Ser	Asn	Asn	Gly
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Asn	Tyr	Thr	Cys	Val	Val	Thr	Tyr	Pro	Glu	Asn	Gly	Arg	Thr	Phe	His
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Glu	Pro	Gly	Glu	Glu	Leu	Leu	Ile	Pro	Cys	Thr	Val	Tyr	Phe	Ser	Phe
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Leu	Met	Asp	Ser	Arg	Asn	Glu	Val	Trp	Trp	Thr	Ile	Asp	Gly	Lys	Lys
	275					280						285			
Pro	Asp	Asp	Ile	Thr	Ile	Asp	Val	Thr	Ile	Asn	Glu	Ser	Ile	Ser	His
	290					295					300				
Ser	Arg	Thr	Glu	Asp	Glu	Thr	Arg	Thr	Gln	Ile	Leu	Ser	Ile	Lys	Lys
305					310					315					320
Val	Thr	Ser	Glu	Asp	Leu	Lys	Arg	Ser	Tyr	Val	Cys	His	Ala	Arg	Ser
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Asn	Glu	Ile	Asp	Val	Arg	Pro	Cys	Pro	Leu	Asn	Pro	Asn	Glu	His	Lys
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Gly	Thr	Ile	Thr	Trp	Tyr	Lys	Asp	Asp	Ser	Lys	Thr	Pro	Val	Ser	Thr
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Glu	Gln	Ala	Ser	Arg	Ile	His	Gln	His	Lys	Glu	Lys	Leu	Trp	Phe	Val
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Pro	Ala	Lys	Val	Glu	Asp	Ser	Gly	His	Tyr	Tyr	Cys	Val	Val	Arg	Asn
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Ser	Ser	Tyr	Cys	Leu	Arg	Ile	Lys	Ile	Ser	Ala	Lys	Phe	Val	Glu	Asn
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Glu	Pro	Asn	Leu	Cys	Tyr	Asn	Ala	Gln	Ala	Ile	Phe	Lys	Gln	Lys	Leu

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Pro	Val	Ala	Gly	Asp	Gly	Gly	Leu	Val	Cys	Pro	Tyr	Met	Glu	Phe	Phe
				485					490					495	
Lys	Asn	Glu	Asn	Asn	Glu	Leu	Pro	Lys	Leu	Gln	Trp	Tyr	Lys	Asp	Cys
			500					505					510		
Lys	Pro	Leu	Leu	Leu	Asp	Asn	Ile	His	Phe	Ser	Gly	Val	Lys	Asp	Arg
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Ile	Glu	Phe	Ile	Thr	Leu	Glu	Glu	Asn	Lys	Pro	Thr	Arg	Pro	Val	Ile
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Val	Ser	Pro	Ala	Asn	Glu	Thr	Met	Glu	Val	Asp	Leu	Gly	Ser	Gln	Ile
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Gln	Leu	Ile	Cys	Asn	Val	Thr	Gly	Gln	Leu	Ser	Asp	Ile	Ala	Tyr	Trp
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Lys	Trp	Asn	Gly	Ser	Val	Ile	Asp	Glu	Asp	Asp	Pro	Val	Leu	Gly	Glu
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Asp	Tyr	Tyr	Ser	Val	Glu	Asn	Pro	Ala	Asn	Lys	Arg	Arg	Ser	Thr	Leu
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Ile	Thr	Val	Leu	Asn	Ile	Ser	Glu	Ile	Glu	Ser	Arg	Phe	Tyr	Lys	His
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Pro	Phe	Thr	Cys	Phe	Ala	Lys	Asn	Thr	His	Gly	Ile	Asp	Ala	Ala	Tyr
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Ile	Gln	Leu	Ile	Tyr	Pro	Val	Thr	Asn	Ser	Gly	Asp	Lys	Thr	His	Thr
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Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe
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Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro
705				710						715					720
Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val
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Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr
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Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val
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Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys
	770					775					780				
Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser
785				790						795					800
Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro
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Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val
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Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly
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Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp
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Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp
865					870					875					880
Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His
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1				5					10					15				
ctg	ctg	cag	gtg	gca	agc	tct	ggg	aac	atg	aag	gtc	ttg	cag	gag	ccc		96	
Leu	Leu	Gln	Val	Ala	Ser	Ser	Gly	Asn	Met	Lys	Val	Leu	Gln	Glu	Pro			
			20					25					30					
acc	tgc	gtc	tcc	gac	tac	atg	agc	atc	tct	act	tgc	gag	tgg	aag	atg		144	
Thr	Cys	Val	Ser	Asp	Tyr	Met	Ser	Ile	Ser	Thr	Cys	Glu	Trp	Lys	Met			
		35					40					45						
aat	ggt	ccc	acc	aat	tgc	agc	acc	gag	ctc	cgc	ctg	ttg	tac	cag	ctg		192	
Asn	Gly	Pro	Thr	Asn	Cys	Ser	Thr	Glu	Leu	Arg	Leu	Leu	Tyr	Gln	Leu			
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gtt	ttt	ctg	ctc	tcc	gaa	gcc	cac	acg	tgt	atc	cct	gag	aac	aac	gga		240	
Val	Phe	Leu	Leu	Ser	Glu	Ala	His	Thr	Cys	Ile	Pro	Glu	Asn	Asn	Gly			
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ggc	gcg	ggg	tgc	gtg	tgc	cac	ctg	ctc	atg	gat	gac	gtg	gtc	agt	gcg		288	
Gly	Ala	Gly	Cys	Val	Cys	His	Leu	Leu	Met	Asp	Asp	Val	Val	Ser	Ala			
				85					90					95				
gat	aac	tat	aca	ctg	gac	ctg	tgg	gct	ggg	cag	cag	ctg	ctg	tgg	aag		336	
Asp	Asn	Tyr	Thr	Leu	Asp	Leu	Trp	Ala	Gly	Gln	Gln	Leu	Leu	Trp	Lys			
			100					105					110					
ggc	tcc	ttc	aag	ccc	agc	gag	cat	gtg	aaa	ccc	agg	gcc	cca	gga	aac		384	
Gly	Ser	Phe	Lys	Pro	Ser	Glu	His	Val	Lys	Pro	Arg	Ala	Pro	Gly	Asn			
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ctg	aca	gtt	cac	acc	aat	gtc	tcc	gac	act	ctg	ctg	ctg	acc	tgg	agc		432	
Leu	Thr	Val	His	Thr	Asn	Val	Ser	Asp	Thr	Leu	Leu	Leu	Thr	Trp	Ser			
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Asn	Pro	Tyr	Pro	Pro	Asp	Asn	Tyr	Leu	Tyr	Asn	His	Leu	Thr	Tyr	Ala			
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gtc	aac	att	tgg	agt	gaa	aac	gac	ccg	gca	gat	ttc	aga	atc	tat	aac		528	
Val	Asn	Ile	Trp	Ser	Glu	Asn	Asp	Pro	Ala	Asp	Phe	Arg	Ile	Tyr	Asn			
				165				170						175				
gtg	acc	tac	cta	gaa	ccc	tcc	ctc	cgc	atc	gca	gcc	agc	acc	ctg	aag		576	
Val	Thr	Tyr	Leu	Glu	Pro	Ser	Leu	Arg	Ile	Ala	Ala	Ser	Thr	Leu	Lys			
			180					185					190					
tct	ggg	att	tcc	tac	agg	gca	cgg	gtg	agg	gcc	tgg	gct	cag	agc	tat		624	
Ser	Gly	Ile	Ser	Tyr	Arg	Ala	Arg	Val	Arg	Ala	Trp	Ala	Gln	Ser	Tyr			
		195				200						205						
aac	acc	acc	tgg	agt	gag	tgg	agc	ccc	agc	acc	aag	tgg	cac	aac	tcc		672	
Asn	Thr	Thr	Trp	Ser	Glu	Trp	Ser	Pro	Ser	Thr	Lys	Trp	His	Asn	Ser			
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acg gaa act cag cca cct gtg aca aat ttg agt gtc tct gtt gaa aac Thr Glu Thr Gln Pro Pro Val Thr Asn Leu Ser Val Ser Val Glu Asn 245 250 255	768
ctc tgc aca gta ata tgg aca tgg aat cca ccc gag gga gcc agc tca Leu Cys Thr Val Ile Trp Thr Trp Asn Pro Pro Glu Gly Ala Ser Ser 260 265 270	816
aat tgt agt cta tgg tat ttt agt cat ttt ggc gac aaa caa gat aag Asn Cys Ser Leu Trp Tyr Phe Ser His Phe Gly Asp Lys Gln Asp Lys 275 280 285	864
aaa ata gct ccg gaa act cgt cgt tca ata gaa gta ccc ctg aat gag Lys Ile Ala Pro Glu Thr Arg Arg Ser Ile Glu Val Pro Leu Asn Glu 290 295 300	912
agg att tgt ctg caa gtg ggg tcc cag tgt agc acc aat gag agt gag Arg Ile Cys Leu Gln Val Gly Ser Gln Cys Ser Thr Asn Glu Ser Glu 305 310 315 320	960
aag cct agc att ttg gtt gaa aaa tgc atc tca ccc cca gaa ggt gat Lys Pro Ser Ile Leu Val Glu Lys Cys Ile Ser Pro Pro Glu Gly Asp 325 330 335	1008
cct gag tct gct gtg act gag ctt caa tgc att tgg cac aac ctg agc Pro Glu Ser Ala Val Thr Glu Leu Gln Cys Ile Trp His Asn Leu Ser 340 345 350	1056
tac atg aag tgt tct tgg ctc cct gga agg aat acc agt ccc gac act Tyr Met Lys Cys Ser Trp Leu Pro Gly Arg Asn Thr Ser Pro Asp Thr 355 360 365	1104
aac tat act ctc tac tat tgg cac aga agc ctg gaa aaa att cat caa Asn Tyr Thr Leu Tyr Tyr Trp His Arg Ser Leu Glu Lys Ile His Gln 370 375 380	1152
tgt gaa aac atc ttt aga gaa ggc caa tac ttt ggt tgt tcc ttt gat Cys Glu Asn Ile Phe Arg Glu Gly Gln Tyr Phe Gly Cys Ser Phe Asp 385 390 395 400	1200
ctg acc aaa gtg aag gat tcc agt ttt gaa caa cac agt gtc caa ata Leu Thr Lys Val Lys Asp Ser Ser Phe Glu Gln His Ser Val Gln Ile 405 410 415	1248
atg gtc aag gat aat gca gga aaa att aaa cca tcc ttc aat ata gtg Met Val Lys Asp Asn Ala Gly Lys Ile Lys Pro Ser Phe Asn Ile Val 420 425 430	1296
cct tta act tcc cgt gtg aaa cct gat cct cca cat att aaa aac ctc Pro Leu Thr Ser Arg Val Lys Pro Asp Pro Pro His Ile Lys Asn Leu 435 440 445	1344
tcc ttc cac aat gat gac cta tat gtg caa tgg gag aat cca cag aat Ser Phe His Asn Asp Asp Leu Tyr Val Gln Trp Glu Asn Pro Gln Asn 450 455 460	1392
ttt att agc aga tgc cta ttt tat gaa gta gaa gtc aat aac agc caa	1440

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Thr	Glu	Thr	His	Asn	Val	Phe	Tyr	Val	Gln	Glu	Ala	Lys	Cys	Glu	Asn	
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cca	gaa	ttt	gag	aga	aat	gtg	gag	aat	aca	tct	tgt	ttc	atg	gtc	cct	1536
Pro	Glu	Phe	Glu	Arg	Asn	Val	Glu	Asn	Thr	Ser	Cys	Phe	Met	Val	Pro	
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ggt	gtt	ctt	cct	gat	act	ttg	aac	aca	gtc	aga	ata	aga	gtc	aaa	aca	1584
Gly	Val	Leu	Pro	Asp	Thr	Leu	Asn	Thr	Val	Arg	Ile	Arg	Val	Lys	Thr	
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Asn	Lys	Leu	Cys	Tyr	Glu	Asp	Asp	Lys	Leu	Trp	Ser	Asn	Trp	Ser	Gln	
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gaa	atg	agt	ata	ggt	aag	aag	cgc	aat	tcc	aca	acc	gga	gac	aaa	act	1680
Glu	Met	Ser	Ile	Gly	Lys	Lys	Arg	Asn	Ser	Thr	Thr	Gly	Asp	Lys	Thr	
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His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	
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Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	
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acc	cct	gag	gtc	aca	tgc	gtg	gtg	gtg	gac	gtg	agc	cac	gaa	gac	cct	1824
Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	
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gag	gtc	aag	ttc	aac	tgg	tac	gtg	gac	ggc	gtg	gag	gtg	cat	aat	gcc	1872
Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	
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aag	aca	aag	ccg	cgg	gag	gag	cag	tac	aac	agc	acg	tac	cgt	gtg	gtc	1920
Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	
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agc	gtc	ctc	acc	gtc	ctg	cac	cag	gac	tgg	ctg	aat	ggc	aag	gag	tac	1968
Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	
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aag	tgc	aag	gtc	tcc	aac	aaa	gcc	ctc	cca	gcc	ccc	atc	gag	aaa	acc	2016
Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	
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Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	
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ccc	cca	tcc	cgg	gag	gag	atg	acc	aag	aac	cag	gtc	agc	ctg	acc	tgc	2112
Pro	Pro	Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	
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ctg	gtc	aaa	ggc	ttc	tat	ccc	agc	gac	atc	gcc	gtg	gag	tgg	gag	agc	2160
Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	

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aat ggg cag ccg gag aac aac tac aag acc acg cct ccc gtg ctg gac				2208
Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp				
725		730	735	
tcc gac ggc tcc ttc ttc ctc tat agc aag ctc acc gtg gac aag agc				2256
Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser				
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agg tgg cag cag ggg aac gtc ttc tca tgc tcc gtg atg cat gag gct				2304
Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala				
755		760	765	
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Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys				
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Thr Cys Val Ser Asp Tyr Met Ser Ile Ser Thr Cys Glu Trp Lys Met				
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Asn Gly Pro Thr Asn Cys Ser Thr Glu Leu Arg Leu Leu Tyr Gln Leu				
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Val Phe Leu Leu Ser Glu Ala His Thr Cys Ile Pro Glu Asn Asn Gly				
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Gly Ala Gly Cys Val Cys His Leu Leu Met Asp Asp Val Val Ser Ala				
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Asp Asn Tyr Thr Leu Asp Leu Trp Ala Gly Gln Gln Leu Leu Trp Lys				
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Gly Ser Phe Lys Pro Ser Glu His Val Lys Pro Arg Ala Pro Gly Asn				
115 120 125				
Leu Thr Val His Thr Asn Val Ser Asp Thr Leu Leu Leu Thr Trp Ser				
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Asn Pro Tyr Pro Pro Asp Asn Tyr Leu Tyr Asn His Leu Thr Tyr Ala				
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Val Asn Ile Trp Ser Glu Asn Asp Pro Ala Asp Phe Arg Ile Tyr Asn				
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Val Thr Tyr Leu Glu Pro Ser Leu Arg Ile Ala Ala Ser Thr Leu Lys				
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260 265 270				
Asn Cys Ser Leu Trp Tyr Phe Ser His Phe Gly Asp Lys Gln Asp Lys				

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Lys	Pro	Ser	Ile	Leu	Val	Glu	Lys	Cys	Ile	Ser	Pro	Pro	Glu	Gly	Asp
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Pro	Glu	Ser	Ala	Val	Thr	Glu	Leu	Gln	Cys	Ile	Trp	His	Asn	Leu	Ser
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Tyr	Met	Lys	Cys	Ser	Trp	Leu	Pro	Gly	Arg	Asn	Thr	Ser	Pro	Asp	Thr
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Asn	Tyr	Thr	Leu	Tyr	Tyr	Trp	His	Arg	Ser	Leu	Glu	Lys	Ile	His	Gln
	370					375					380				
Cys	Glu	Asn	Ile	Phe	Arg	Glu	Gly	Gln	Tyr	Phe	Gly	Cys	Ser	Phe	Asp
385				390						395					400
Leu	Thr	Lys	Val	Lys	Asp	Ser	Ser	Phe	Glu	Gln	His	Ser	Val	Gln	Ile
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Met	Val	Lys	Asp	Asn	Ala	Gly	Lys	Ile	Lys	Pro	Ser	Phe	Asn	Ile	Val
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Pro	Leu	Thr	Ser	Arg	Val	Lys	Pro	Asp	Pro	Pro	His	Ile	Lys	Asn	Leu
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Phe	Ile	Ser	Arg	Cys	Leu	Phe	Tyr	Glu	Val	Glu	Val	Asn	Asn	Ser	Gln
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Thr	Glu	Thr	His	Asn	Val	Phe	Tyr	Val	Gln	Glu	Ala	Lys	Cys	Glu	Asn
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Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro
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Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val
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Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr
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Pro	Pro	Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys
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Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser
705				710						715					720
Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp
			725					730						735	
Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser
			740					745					750		
Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala
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Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
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Met	Val	Trp	Pro	Ala	Arg	Leu	Cys	Gly	Leu	Trp	Ala	Leu	Leu	Leu	Cys	
1				5					10					15		
gcc	ggc	ggc	ggg	ggc	ggg	ggc	ggg	ggc	gcc	gcg	cct	acg	gaa	act	cag	96
Ala	Gly	Gly	Gly	Gly	Gly	Gly	Gly	Gly	Ala	Ala	Pro	Thr	Glu	Thr	Gln	
			20					25					30			
cca	cct	gtg	aca	aat	ttg	agt	gtc	tct	gtt	gaa	aac	ctc	tgc	aca	gta	144
Pro	Pro	Val	Thr	Asn	Leu	Ser	Val	Ser	Val	Glu	Asn	Leu	Cys	Thr	Val	
		35					40					45				
ata	tgg	aca	tgg	aat	cca	ccc	gag	gga	gcc	agc	tca	aat	tgt	agt	cta	192
Ile	Trp	Thr	Trp	Asn	Pro	Pro	Glu	Gly	Ala	Ser	Ser	Asn	Cys	Ser	Leu	
	50					55					60					
tgg	tat	ttt	agt	cat	ttt	ggc	gac	aaa	caa	gat	aag	aaa	ata	gct	ccg	240
Trp	Tyr	Phe	Ser	His	Phe	Gly	Asp	Lys	Gln	Asp	Lys	Lys	Ile	Ala	Pro	
65					70					75					80	
gaa	act	cgt	cgt	tca	ata	gaa	gta	ccc	ctg	aat	gag	agg	att	tgt	ctg	288
Glu	Thr	Arg	Arg	Ser	Ile	Glu	Val	Pro	Leu	Asn	Glu	Arg	Ile	Cys	Leu	
				85					90					95		
caa	gtg	ggg	tcc	cag	tgt	agc	acc	aat	gag	agt	gag	aag	cct	agc	att	336
Gln	Val	Gly	Ser	Gln	Cys	Ser	Thr	Asn	Glu	Ser	Glu	Lys	Pro	Ser	Ile	
			100					105					110			
ttg	gtt	gaa	aaa	tgc	atc	tca	ccc	cca	gaa	ggt	gat	cct	gag	tct	gct	384
Leu	Val	Glu	Lys	Cys	Ile	Ser	Pro	Pro	Glu	Gly	Asp	Pro	Glu	Ser	Ala	
		115					120					125				
gtg	act	gag	ctt	caa	tgc	att	tgg	cac	aac	ctg	agc	tac	atg	aag	tgt	432
Val	Thr	Glu	Leu	Gln	Cys	Ile	Trp	His	Asn	Leu	Ser	Tyr	Met	Lys	Cys	
		130				135					140					
tct	tgg	ctc	cct	gga	agg	aat	acc	agt	ccc	gac	act	aac	tat	act	ctc	480
Ser	Trp	Leu	Pro	Gly	Arg	Asn	Thr	Ser	Pro	Asp	Thr	Asn	Tyr	Thr	Leu	
145				150						155					160	
tac	tat	tgg	cac	aga	agc	ctg	gaa	aaa	att	cat	caa	tgt	gaa	aac	atc	528
Tyr	Tyr	Trp	His	Arg	Ser	Leu	Glu	Lys	Ile	His	Gln	Cys	Glu	Asn	Ile	
				165					170					175		
ttt	aga	gaa	ggc	caa	tac	ttt	ggt	tgt	tcc	ttt	gat	ctg	acc	aaa	gtg	576
Phe	Arg	Glu	Gly	Gln	Tyr	Phe	Gly	Cys	Ser	Phe	Asp	Leu	Thr	Lys	Val	
			180					185						190		

aag gat tcc agt ttt gaa caa cac agt gtc caa ata atg gtc aag gat	624
Lys Asp Ser Ser Phe Glu Gln His Ser Val Gln Ile Met Val Lys Asp	
195 200 205	
aat gca gga aaa att aaa cca tcc ttc aat ata gtg cct tta act tcc	672
Asn Ala Gly Lys Ile Lys Pro Ser Phe Asn Ile Val Pro Leu Thr Ser	
210 215 220	
cgt gtg aaa cct gat cct cca cat att aaa aac ctc tcc ttc cac aat	720
Arg Val Lys Pro Asp Pro Pro His Ile Lys Asn Leu Ser Phe His Asn	
225 230 235 240	
gat gac cta tat gtg caa tgg gag aat cca cag aat ttt att agc aga	768
Asp Asp Leu Tyr Val Gln Trp Glu Asn Pro Gln Asn Phe Ile Ser Arg	
245 250 255	
tgc cta ttt tat gaa gta gaa gtc aat aac agc caa act gag aca cat	816
Cys Leu Phe Tyr Glu Val Glu Val Asn Asn Ser Gln Thr Glu Thr His	
260 265 270	
aat gtt ttc tac gtc caa gag gct aaa tgt gag aat cca gaa ttt gag	864
Asn Val Phe Tyr Val Gln Glu Ala Lys Cys Glu Asn Pro Glu Phe Glu	
275 280 285	
aga aat gtg gag aat aca tct tgt ttc atg gtc cct ggt gtt ctt cct	912
Arg Asn Val Glu Asn Thr Ser Cys Phe Met Val Pro Gly Val Leu Pro	
290 295 300	
gat act ttg aac aca gtc aga ata aga gtc aaa aca aat aag tta tgc	960
Asp Thr Leu Asn Thr Val Arg Ile Arg Val Lys Thr Asn Lys Leu Cys	
305 310 315 320	
tat gag gat gac aaa ctc tgg agt aat tgg agc caa gaa atg agt ata	1008
Tyr Glu Asp Asp Lys Leu Trp Ser Asn Trp Ser Gln Glu Met Ser Ile	
325 330 335	
ggt aag aag cgc aat tcc aca ggc gcg cct agt ggt gga ggt ggc cgg	1056
Gly Lys Lys Arg Asn Ser Thr Gly Ala Pro Ser Gly Gly Gly Arg	
340 345 350	
ccc gca agc tct ggg aac atg aag gtc ttg cag gag ccc acc tgc gtc	1104
Pro Ala Ser Ser Gly Asn Met Lys Val Leu Gln Glu Pro Thr Cys Val	
355 360 365	
tcc gac tac atg agc atc tct act tgc gag tgg aag atg aat ggt ccc	1152
Ser Asp Tyr Met Ser Ile Ser Thr Cys Glu Trp Lys Met Asn Gly Pro	
370 375 380	
acc aat tgc agc acc gag ctc cgc ctg ttg tac cag ctg gtt ttt ctg	1200
Thr Asn Cys Ser Thr Glu Leu Arg Leu Leu Tyr Gln Leu Val Phe Leu	
385 390 395 400	
ctc tcc gaa gcc cac acg tgt atc cct gag aac aac gga ggc gcg ggg	1248
Leu Ser Glu Ala His Thr Cys Ile Pro Glu Asn Asn Gly Gly Ala Gly	
405 410 415	
tgc gtg tgc cac ctg ctc atg gat gac gtg gtc agt gcg gat aac tat	1296
Cys Val Cys His Leu Leu Met Asp Asp Val Val Ser Ala Asp Asn Tyr	
420 425 430	
aca ctg gac ctg tgg gct ggg cag cag ctg ctg tgg aag ggc tcc ttc	1344

Thr	Leu	Asp	Leu	Trp	Ala	Gly	Gln	Gln	Leu	Leu	Trp	Lys	Gly	Ser	Phe		
		435					440					445					
aag	ccc	agc	gag	cat	gtg	aaa	ccc	agg	gcc	cca	gga	aac	ctg	aca	gtt		1392
Lys	Pro	Ser	Glu	His	Val	Lys	Pro	Arg	Ala	Pro	Gly	Asn	Leu	Thr	Val		
	450					455					460						
cac	acc	aat	gtc	tcc	gac	act	ctg	ctg	ctg	acc	tgg	agc	aac	ccg	tat		1440
His	Thr	Asn	Val	Ser	Asp	Thr	Leu	Leu	Leu	Thr	Trp	Ser	Asn	Pro	Tyr		
465					470					475					480		
ccc	cct	gac	aat	tac	ctg	tat	aat	cat	ctc	acc	tat	gca	gtc	aac	att		1488
Pro	Pro	Asp	Asn	Tyr	Leu	Tyr	Asn	His	Leu	Thr	Tyr	Ala	Val	Asn	Ile		
			485						490					495			
tgg	agt	gaa	aac	gac	ccg	gca	gat	ttc	aga	atc	tat	aac	gtg	acc	tac		1536
Trp	Ser	Glu	Asn	Asp	Pro	Ala	Asp	Phe	Arg	Ile	Tyr	Asn	Val	Thr	Tyr		
			500					505					510				
cta	gaa	ccc	tcc	ctc	cgc	atc	gca	gcc	agc	acc	ctg	aag	tct	ggg	att		1584
Leu	Glu	Pro	Ser	Leu	Arg	Ile	Ala	Ala	Ser	Thr	Leu	Lys	Ser	Gly	Ile		
		515					520					525					
tcc	tac	agg	gca	cgg	gtg	agg	gcc	tgg	gct	cag	tgc	tat	aac	acc	acc		1632
Ser	Tyr	Arg	Ala	Arg	Val	Arg	Ala	Trp	Ala	Gln	Cys	Tyr	Asn	Thr	Thr		
	530					535				540							
tgg	agt	gag	tgg	agc	ccc	agc	acc	aag	tgg	cac	aac	tcc	tac	agg	gag		1680
Trp	Ser	Glu	Trp	Ser	Pro	Ser	Thr	Lys	Trp	His	Asn	Ser	Tyr	Arg	Glu		
545					550				555						560		
ccc	ttc	gag	cag	tcc	gga	gac	aaa	act	cac	aca	tgc	cca	ccg	tgc	cca		1728
Pro	Phe	Glu	Gln	Ser	Gly	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro		
				565				570						575			
gca	cct	gaa	ctc	ctg	ggg	gga	ccg	tca	gtc	ttc	ctc	ttc	ccc	cca	aaa		1776
Ala	Pro	Glu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys			
			580				585					590					
ccc	aag	gac	acc	ctc	atg	atc	tcc	cgg	acc	cct	gag	gtc	aca	tgc	gtg		1824
Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val		
		595					600					605					
gtg	gtg	gac	gtg	agc	cac	gaa	gac	cct	gag	gtc	aag	ttc	aac	tgg	tac		1872
Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr		
	610					615					620						
gtg	gac	ggc	gtg	gag	gtg	cat	aat	gcc	aag	aca	aag	ccg	cgg	gag	gag		1920
Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu		
625					630				635					640			
cag	tac	aac	agc	acg	tac	cgt	gtg	gtc	agc	gtc	ctc	acc	gtc	ctg	cac		1968
Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His		
				645				650					655				
cag	gac	tgg	ctg	aat	ggc	aag	gag	tac	aag	tgc	aag	gtc	tcc	aac	aaa		2016
Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys		
			660				665					670					
gcc	ctc	cca	gcc	ccc	atc	gag	aaa	acc	atc	tcc	aaa	gcc	aaa	ggg	cag		2064
Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln		

675	680	685	
ccc cga gaa cca cag gtg tac acc ctg ccc cca tcc cgg gag gag atg			2112
Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met			
690	695	700	
acc aag aac cag gtc agc ctg acc tgc ctg gtc aaa ggc ttc tat ccc			2160
Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro			
705	710	715	720
agc gac atc gcc gtg gag tgg gag agc aat ggg cag ccg gag aac aac			2208
Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn			
	725	730	735
tac aag acc acg cct ccc gtg ctg gac tcc gac ggc tcc ttc ttc ctc			2256
Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu			
	740	745	750
tat agc aag ctc acc gtg gac aag agc agg tgg cag cag ggg aac gtc			2304
Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val			
	755	760	765
ttc tca tgc tcc gtg atg cat gag gct ctg cac aac cac tac acg cag			2352
Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln			
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Lys Ser Leu Ser Leu Ser Pro Gly Lys			
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<400> 32

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Pro Pro Val Thr Asn Leu Ser Val Ser Val Glu Asn Leu Cys Thr Val			
	35	40	45
Ile Trp Thr Trp Asn Pro Pro Glu Gly Ala Ser Ser Asn Cys Ser Leu			
	50	55	60
Trp Tyr Phe Ser His Phe Gly Asp Lys Gln Asp Lys Lys Ile Ala Pro			
65	70	75	80
Glu Thr Arg Arg Ser Ile Glu Val Pro Leu Asn Glu Arg Ile Cys Leu			
	85	90	95
Gln Val Gly Ser Gln Cys Ser Thr Asn Glu Ser Glu Lys Pro Ser Ile			
	100	105	110
Leu Val Glu Lys Cys Ile Ser Pro Pro Glu Gly Asp Pro Glu Ser Ala			
	115	120	125
Val Thr Glu Leu Gln Cys Ile Trp His Asn Leu Ser Tyr Met Lys Cys			
	130	135	140
Ser Trp Leu Pro Gly Arg Asn Thr Ser Pro Asp Thr Asn Tyr Thr Leu			
145	150	155	160
Tyr Tyr Trp His Arg Ser Leu Glu Lys Ile His Gln Cys Glu Asn Ile			
	165	170	175
Phe Arg Glu Gly Gln Tyr Phe Gly Cys Ser Phe Asp Leu Thr Lys Val			
	180	185	190

Lys	Asp	Ser	Ser	Phe	Glu	Gln	His	Ser	Val	Gln	Ile	Met	Val	Lys	Asp
	195						200					205			
Asn	Ala	Gly	Lys	Ile	Lys	Pro	Ser	Phe	Asn	Ile	Val	Pro	Leu	Thr	Ser
	210					215					220				
Arg	Val	Lys	Pro	Asp	Pro	Pro	His	Ile	Lys	Asn	Leu	Ser	Phe	His	Asn
225				230						235					240
Asp	Asp	Leu	Tyr	Val	Gln	Trp	Glu	Asn	Pro	Gln	Asn	Phe	Ile	Ser	Arg
			245						250					255	
Cys	Leu	Phe	Tyr	Glu	Val	Glu	Val	Asn	Asn	Ser	Gln	Thr	Glu	Thr	His
		260						265					270		
Asn	Val	Phe	Tyr	Val	Gln	Glu	Ala	Lys	Cys	Glu	Asn	Pro	Glu	Phe	Glu
	275						280					285			
Arg	Asn	Val	Glu	Asn	Thr	Ser	Cys	Phe	Met	Val	Pro	Gly	Val	Leu	Pro
	290					295					300				
Asp	Thr	Leu	Asn	Thr	Val	Arg	Ile	Arg	Val	Lys	Thr	Asn	Lys	Leu	Cys
305					310					315					320
Tyr	Glu	Asp	Asp	Lys	Leu	Trp	Ser	Asn	Trp	Ser	Gln	Glu	Met	Ser	Ile
				325					330					335	
Gly	Lys	Lys	Arg	Asn	Ser	Thr	Gly	Ala	Pro	Ser	Gly	Gly	Gly	Gly	Arg
			340					345					350		
Pro	Ala	Ser	Ser	Gly	Asn	Met	Lys	Val	Leu	Gln	Glu	Pro	Thr	Cys	Val
	355						360					365			
Ser	Asp	Tyr	Met	Ser	Ile	Ser	Thr	Cys	Glu	Trp	Lys	Met	Asn	Gly	Pro
	370					375					380				
Thr	Asn	Cys	Ser	Thr	Glu	Leu	Arg	Leu	Leu	Tyr	Gln	Leu	Val	Phe	Leu
385					390					395					400
Leu	Ser	Glu	Ala	His	Thr	Cys	Ile	Pro	Glu	Asn	Asn	Gly	Gly	Ala	Gly
				405					410					415	
Cys	Val	Cys	His	Leu	Leu	Met	Asp	Asp	Val	Val	Ser	Ala	Asp	Asn	Tyr
			420					425					430		
Thr	Leu	Asp	Leu	Trp	Ala	Gly	Gln	Gln	Leu	Leu	Trp	Lys	Gly	Ser	Phe
	435						440					445			
Lys	Pro	Ser	Glu	His	Val	Lys	Pro	Arg	Ala	Pro	Gly	Asn	Leu	Thr	Val
	450					455					460				
His	Thr	Asn	Val	Ser	Asp	Thr	Leu	Leu	Leu	Thr	Trp	Ser	Asn	Pro	Tyr
465					470					475					480
Pro	Pro	Asp	Asn	Tyr	Leu	Tyr	Asn	His	Leu	Thr	Tyr	Ala	Val	Asn	Ile
				485					490					495	
Trp	Ser	Glu	Asn	Asp	Pro	Ala	Asp	Phe	Arg	Ile	Tyr	Asn	Val	Thr	Tyr
			500					505					510		
Leu	Glu	Pro	Ser	Leu	Arg	Ile	Ala	Ala	Ser	Thr	Leu	Lys	Ser	Gly	Ile
	515						520					525			
Ser	Tyr	Arg	Ala	Arg	Val	Arg	Ala	Trp	Ala	Gln	Cys	Tyr	Asn	Thr	Thr
	530					535					540				
Trp	Ser	Glu	Trp	Ser	Pro	Ser	Thr	Lys	Trp	His	Asn	Ser	Tyr	Arg	Glu
545					550					555					560
Pro	Phe	Glu	Gln	Ser	Gly	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro
				565					570					575	
Ala	Pro	Glu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	
			580					585				590			
Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val
	595						600					605			
Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr
	610					615					620				
Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu
625					630					635					640
Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His
				645					650					655	
Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys
			660					665				670			
Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln

		675					680					685							
Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu	Glu	Met				
	690					695					700								
Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro				
705					710					715					720				
Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn				
				725					730						735				
Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu				
				740				745						750					
Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val				
		755					760					765							
Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln				
	770					775					780								
Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys											
785					790														